

PHOTOS OF CONTEST WINNING MODEL CARS!

50¢

IND

MODEL CAR *Science*

March 1971

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HOW TO DETAIL A
MODEL CAR DRIVER

THE WORLD OF
MODEL TRUCKS

ANOTHER "MEET
OUR WRITERS"
FEATURE

THE BASICS
OF RADIO
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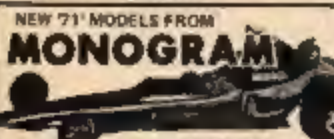


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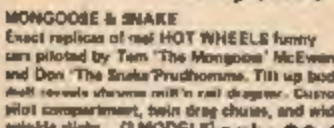
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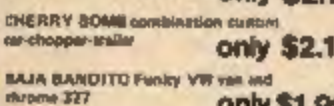
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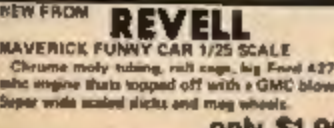
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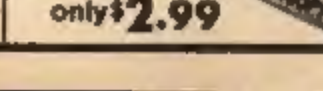
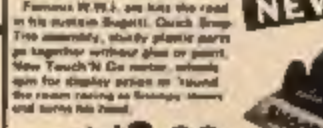
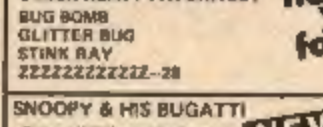
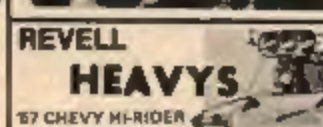
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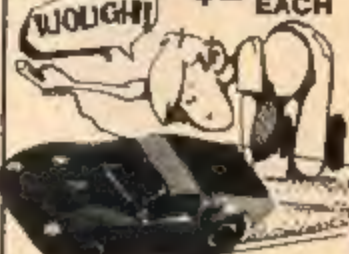
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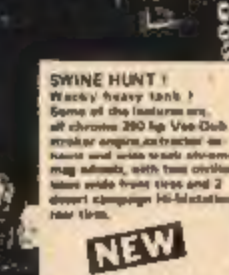
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VOLUME 9, NUMBER 3

ON THE COVER — 13-year old Larry Locke's fantastic MPC Dodge Charger is one of the most exquisitely detailed model cars we've ever seen. You can see the car in all its glory on page 22.

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MODEL MAIL

Address your questions, comments, etc., to The Editor, Model Car Science, P.O. Box 1821, Thousand Oaks, Calif. 91360. We will run letters which we feel will be of interest to the majority of our readers. Due to the large number of letters we receive, we cannot answer letters personally.

CONTEST WINNER

I simply wish to extend a note of appreciation. My name is Marc Melone and you were good enough to award me third place for my design in your recent contest. I also want to thank your magazine department for allowing people like myself a chance to enter such a contest. Especially one with so high a stake. Your kind words concerning my car were greatly appreciated.

Finally, a word about the big winner. I flipped when I saw his fine machine. I thought it was really a well-conceived and crafted dragster.

Marc Melone
Port, Oregon

We have to agree about the winner too. Most of the cars that placed well could have easily won any contest except this one. The number of entries was staggering compared to our other contests and you can be proud that your car placed so well. Our current Zinger Contest is already proving to be a close second. Maybe it'll draw more entries than the Monogram Contest before it's finished!

NASTY CARS

How come you never do any articles on Grand National and Cam engine wiring? You know there's quite a few of us out here who would like to see them in our favorite magazine. Also, how about some modified articles? There are also quite a few modified fans who don't know the first thing about building a model of one. They're those wicked looking machines manufactured between '36 and '67 with engines from a 350 Chevy up to a 429 Ford.

A Modified Lover
Romulus, Mich.

Wait until you feast your eyes on Larry Locke's wild "Nasty Car" this month! The engines in any car are wired basically the same, so why fear

ture a separate article for each engine? We may show how to completely detail an engine for several types of racing, but this would also include things like carburetion and manifold folding. We have articles in the new for a Sportsman Modified (dirt) and a Semi-Hemi Modified (drag).

PRO OR "CON" TEST WINNER?

In your December issue, page 47, there is a photograph in the top left hand corner of a VW called the "Killer." Now in your May, 1970 issue, on page 49, the same VW appears as a privately built contest entry. However, in the December issue you state that it was built by MPC. Or was the May contest winner built by MPC? QUESTION: Does the average modeler really have any chance to win a large contest?

Writer Unknown
Long Beach, Calif.

One of our readers (no name given) was sharp enough to pick out that a former contest winner's (Dennis Johnson) car is now the basis for MPC's Zingers (and our forthcoming contest). Dennis was an amateur when he won that contest, and was eligible. He was also lucky enough to have MPC recognize his talents. ANSWER: Yes, anyone can win a contest if he uses originality and takes the time to carefully build and detail a car.

MODEL CONTEST REQUIREMENTS

You have mentioned a flat aluminum finish that should be available in a local shop. No one has it here. Where can I get it? Also, where can I get decals for the Gremlin "War Wagon?"

I would also like to know more about the "Model of the Month" contest, what you judge on, etc. I want to enter, but the magazine doesn't tell me how the contest is judged.

Steven Andler
Beverly Hills, Calif.

Pactra produces the flat aluminum paint, and any hobby shop should be able to get it for you if they don't stock it. The decals for "War Wagon" are out of an AMT kit and aren't sold separately.

The "Model of the Month" contest is judged on many things, so take note. The first thing we look for is GOOD photographs. A good quality Polaroid, 5x7 or 8x10 glossy will place you in a good position for the rest of the judging. Polaroid Swinger pictures and most (but not all) Instamatic pictures make it impossible to see the model.

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MODEL MAIL

and are, therefore, impossible to judge. Detail, interior, safety equipment, originality, paint, feasibility, judges' opinions, parts swapping and workmanship all play equal roles in creating a winner. The contest is perpetual and you can enter any car or motorcycle at any time.

SNAKE AND MONGOOSE

Thank you for putting out such a fine magazine. I don't want to be a nit-picker, but I think you made a boo-boo in your October issue. In "Question Session", you say there won't ever be a plastic kit of the "Snake" and "Mongoose" Hot Wheels because Mattel owns the rights to them. Monogram models is a division of Mattel Toys, so it seems these kits could appear by Monogram in 1/24 scale.

Why don't you have a contest for pro stock cars? A well detailed stocker is as much work as any funny car, and building a car to fit the rules, but yet make it stand out, would be quite a task.

Karl Samiley
Rontulus, Mich.

The months are slipping by quickly and yet my predictions in "Question Session" still hold true. Granted, Mattel and Monogram are like Gemini twins now, but it was just too late in the racing season to successfully market a new pair of model kits. I predict now that you will see these in a kit form using either '71 or '72 bodies. They would be foolish if they didn't market these kits and take advantage of their sponsorship. A pro-stock contest would be too restrictive for any widespread appeal.

MORE DETAILS

I find the model hobby very interesting and challenging. Would you please tell me what you look for when you judge the models in your "Model of the Month" contest. Also, would (or could) you please send me some ideas about extra detailing.

Mike Lake
Joliet, Ill.

Refer to Steve Andler's letter (above) for the contest info. Back issues of MCS have had a lot of good articles on detailing. You might check out the story about Larry Locke's Charger in this issue for a lot of good ideas. Model Car Science will be pushing heavily towards more articles on static model cars in the future.

QUESTION SESSION

RULES FOR QUESTION SESSION:

1. Submit all questions on a postcard, and only one question to a card, please.
2. Type or PRINT all information.
3. Only those questions of general interest will be answered, in order to help the greatest number of people with a similar problem.
4. The overwhelming number of questions makes it impossible to answer any letters personally. Please, do not send self-addressed, stamped envelopes and ask us to "make an exception to this rule, just this once." We get approximately 1,500 such requests each month.
5. Address your question(s) to: Brick Price, 11030 Lindblade St., Culver City, California 90230.

Regarding the winners and runners-up in your Dream Dragster Contest. On page 40 of the November issue, the entry from Lancaster, California, states that his body has been scratch-built from the Little "T." Boot Hill Express and the Pie Wagon. Well, I know that this is obviously a mistake because the car is the Milk Truck, put out by ELDON, for I have recently purchased one and from careful study of the photo, I have detected that the builder used the original body from the kit and also used the original mags, chassis, headers and front end (lights, tie rods, etc., radiator). The builder also used the original interior construction, omitting the velvet and corduroy. The car had been constructed a few years ago by a California customizer and was in many shows nationwide.

Bob No. 1
Oregon, Ohio

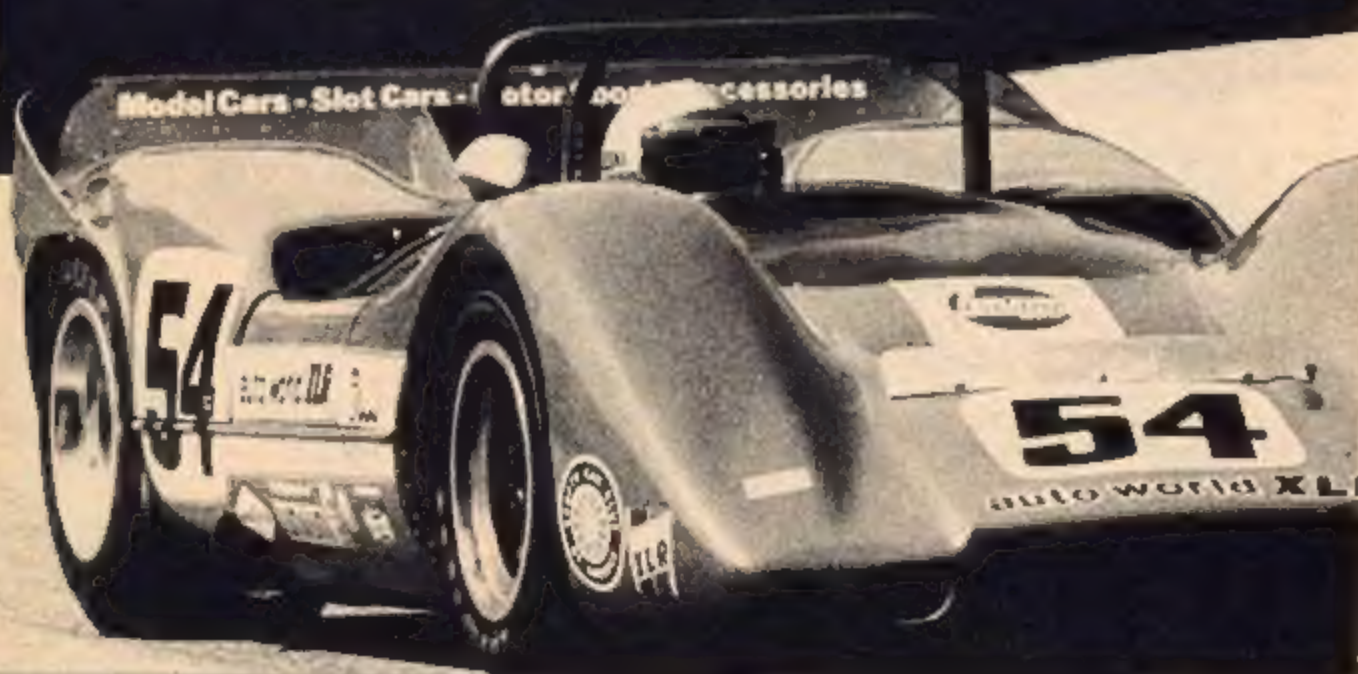
BLUSH! Naturally, you're right about this and it will be rectified. We tried to screen the entries prior to judging but somehow this one sneaked past. The body of the Milk Truck is so simple that we may have seen it as scratchbuilt, but there is no excuse for the wheels.

In reference to the "King Citrus II" model entered in your Dream Dragster Contest, the write-up that accompanied the photo stated that the model was pinstriped, white-faced, and

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March 1971/9

QUESTION SESSION

fogged, I would like to know how to accomplish these procedures so as to improve my own models. Also, I have noticed that most of the models entered in the contest have "Grain o' Wheat" wire for fine detailing. I have an "Auto World" model car catalogue but the wire is not included in the book. Do you know where I could obtain some of this wire? I am much grateful for any information that you can give me. Thank you for your time.

Kelly Hearson

Douphin, Manitoba, Canada

You're right, the paint on "King Citrus II" was outstanding. Pin-stripping refers to very thin lines of paint used to accent large panels or body lines. You can duplicate this on a model by using 1/64" colored tape. Lacing is easier to duplicate on models. Simply place a piece of lace material over a car, (painted with a solid color, already) and lightly "mist" a coat of contrasting color. When lace is removed, you're left with an intricate, soft lace pattern in the paint. Follow up with several coats of clear. Fogging refers to paint that blends from one color into another. This is a bit tricky to do right. You must overlap two coats of paint so as to blend them at the cross-over spot.

The "Grain o' Wheat" wire comes with the "Grain o' Wheat" bulbs available at most model train shops.

I am going to start building the MRC Matra soon. I would like to know where I might get some pictures of Jackie Stewart's actual car, as this would help me in final details, decal placement, etc. I could write to Matra directly, but they're a French company. Do you think I could write to Autolite, as they are the only American company sponsoring the car? If I could get some pictures, how much are they likely to cost?

Jeffrey Ruddock

Los Alto Hills, Calif.

Magazines like Road & Track, Car & Driver and Autoweek are always a good source for such photos. Most cars will change many times during a season, so you may want to pick a particular race, and model the car as it appeared there.

If you can locate someone who has any pictures of the car, they will generally cost a minimum of a dollar to two dollars.

I'd like to know if Atlas still makes their HO buildings and people. If they do, where can I get them? Auto World doesn't carry them anymore.

Rick Linke

Lindenwald, New Jersey

I found my buildings scouting around in older hobby shops and stores that carry model train supplies. Auto World carries the Pretzer line of HO scale people that are fantastically detailed.

What is an "explosion blanket" and where is it located? I heard about it in the December '70 issue of MCS.

Bill Galameau

San Jose, California

An explosion blanket is a relatively new safety device that is used to protect a drag race driver from a disintegrating transmission. The "blanket" actually resembles a blanket that has been wrapped around the trans housing, but, of course, it is much sturdier.

I have the Edsel model that you need, unbuilt and still in a box. I also wonder if any company prints a book with NASCAR cars in color? I have a collection of stock cars and would like to add to it.

Jack Powell

Gainesville, Ga.

I want to thank Jack and all of the others who came to my rescue in response to my plea for an Edsel. I wish I could have answered all of your letters personally. I have my kit now, and can't wait to get some time to build my truck. There is a magazine on the newsstands devoted to stock cars, and Autoweek usually has several fine photos.

Where can I buy a '68 Barracuda by MPC? Where can I get a drag boat? What year Corvette is used for making the custom Willys in 1/25 that is in your May 1967 issue of MCS.

Robert Carter

Santa Cruz, Calif.

Sorry about the 'Cuda, but once they're gone, that's it! I've got better news about the boat. Revell has taken their Hemi powered ski boat and improved and updated it and it will be on dealers' shelves by summertime. You'll find most of the 'Vette parts in any '63 to '67 kit.

I would like to know if I could use a 1/48 scale body instead of a 1/43 scale body in the Zinger contest by MPC. If not, where could I get a plastic 1/43 scale body?

Ken Aiken

Northford, Conn.

The Mini-Lindy bodies are the type normally used to create Zingers. I would think that 1/48th scale bodies would be acceptable, but I'll have to leave that to the discretion of the judges. (Yes, since they're so close - Ed.)

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March 1971/11

THE ART OF SCRATCHBUILDING

BY PHIL JENSEN

this material promises another source of front axles. You'd need only to bend the ends to the proper angle, heating per the instructions in the Plastruct handbook. Some additional shaping might be necessary, depending on the actual axle you're copying.

If you've studied front axles, you'll know there are two general types. The "Elliot" type is the older, and featured an axle beam that forked at the end, the two arms of the fork carrying bushings in which the king-pins rotated. Later on, in the "reverse Elliot" type, the end of the axle was bent to the correct drop and a single bushing inserted, the king-pins were carried in this bushing and dual ones in the stub-axle forging. In either case, the best dodge - for a brass axle - is to make a spindle support as shown in the accompanying drawing, and then solder up the whole works. Use 1/16-inch inside-diameter (ID) brass tubing for the king-pin bushings (all in one piece), soldering the appropriate parts of this to the axle-ends and spindle-support. Next, use a fine jewelers' saw blade to cut through the bushing-piece and separate it into axle-bushings and stub-axle (spindle) bushings. Finally, slip in a 1/16-inch outside-diameter (OD) king-pin, peen the ends, and behold - working steering.

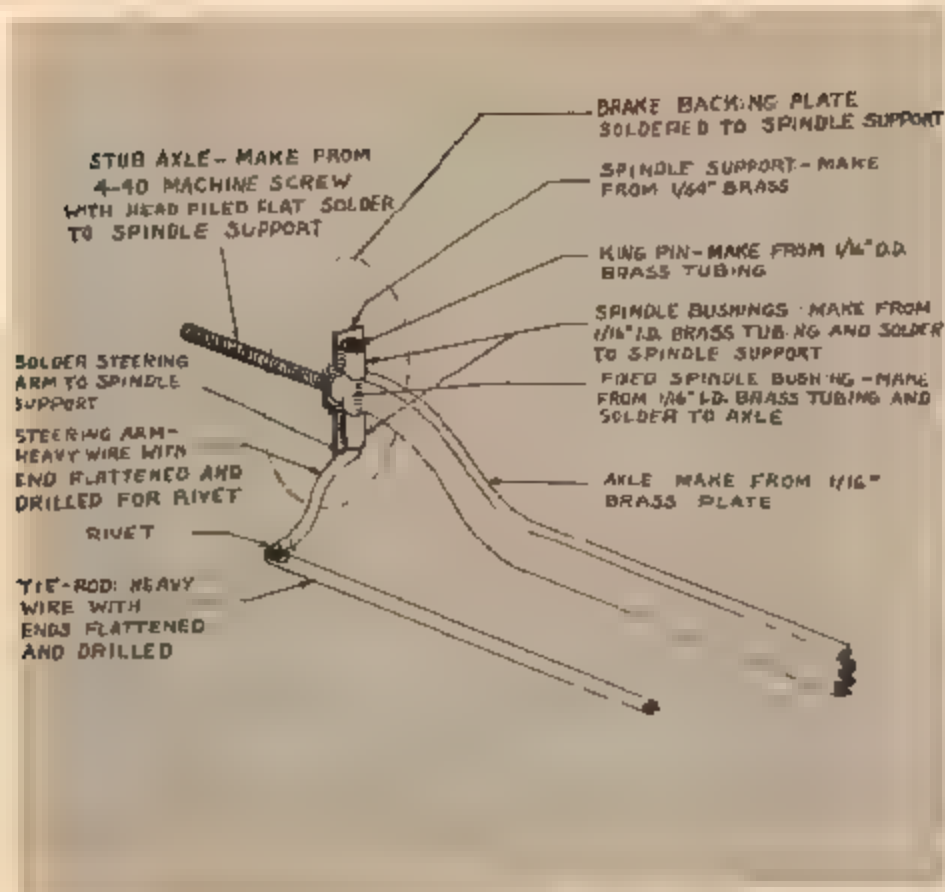
If you're following the wood route, you use 1/8-inch dowel-stock for the king-pins bushings and cement the works together the same way. Then, drill down through the bushing to accept a common pin, saw apart as above, insert the pin and trim it to length.

Brake backing-plates are next. I usually cut these out of brass (or cardstock) after drawing them on the material with a dividers (or compass, or card) and drilling the center-holes to axle size. Next, I mount all four backing plates on a bolt, add a nut, chuck the assembly in a drill, and spin the plates against a file (sandpaper for cardstock) to make them perfectly round and all of the same size.

On some grand prix and sports-racing cars, the backing plates carry air-scoops and/or have screened vents. The scoops should be shaped from thin material and fastened in place, vent screens may be cut from a fine-mesh tea-strainer from the "5 & 10."

The finished backing plates are then cemented or soldered to the stub-axle which is either a 4-40 machine screw with head filed flat and fitted to the spindle support, or a short length of 1/8-inch dowel.

The steering arms, shaped from brass rod or tubing with one end



FOR DOWNRIGHT SIMPLICITY, you can't beat the I-beam or tubular axles that were in vogue until about 1933. After that year, most cars began featuring "independent front suspension" (ifs), and thereby added complexity to automotive modeling. Well, let's look first at the simple ones, and that may give us some ideas for the complex axles of today.

When I'm "scratchng" a car with an I-beam front axle, I cut the web out of either sheet brass (about 1/32 inch thick for a 1/16th-scale model), or burlch plywood. Then - if the web is brass - I add strips of thin brass


shim-stock top and bottom, using wooden clothespins (the spring type) to clamp the strips in place while I solder up the works. If you use plenty of heat and control the amount of solder, the end result is a dead ringer for a forged I-beam. If the web is plywood, the shim brass becomes cardboard and the solder, either model airplane (acetate) cement or "white glue." After assembly, several thick coats of automotive primer-surfacer will fill in the web and give the axle a "solid" appearance.

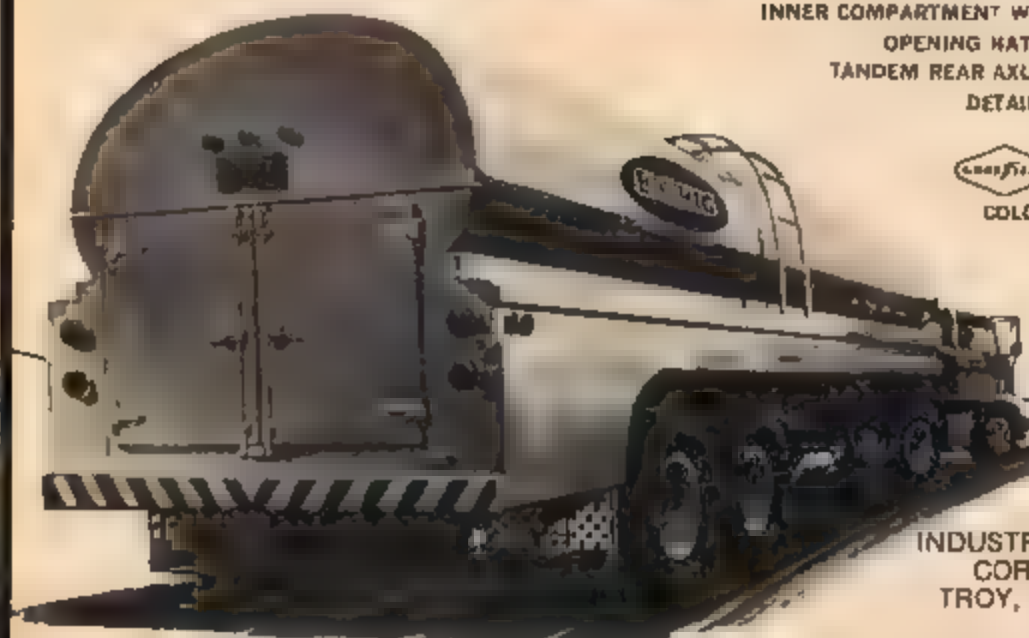
Since plastic I-beams of assorted sizes are available in the Plastruct line,

Continued on page 58



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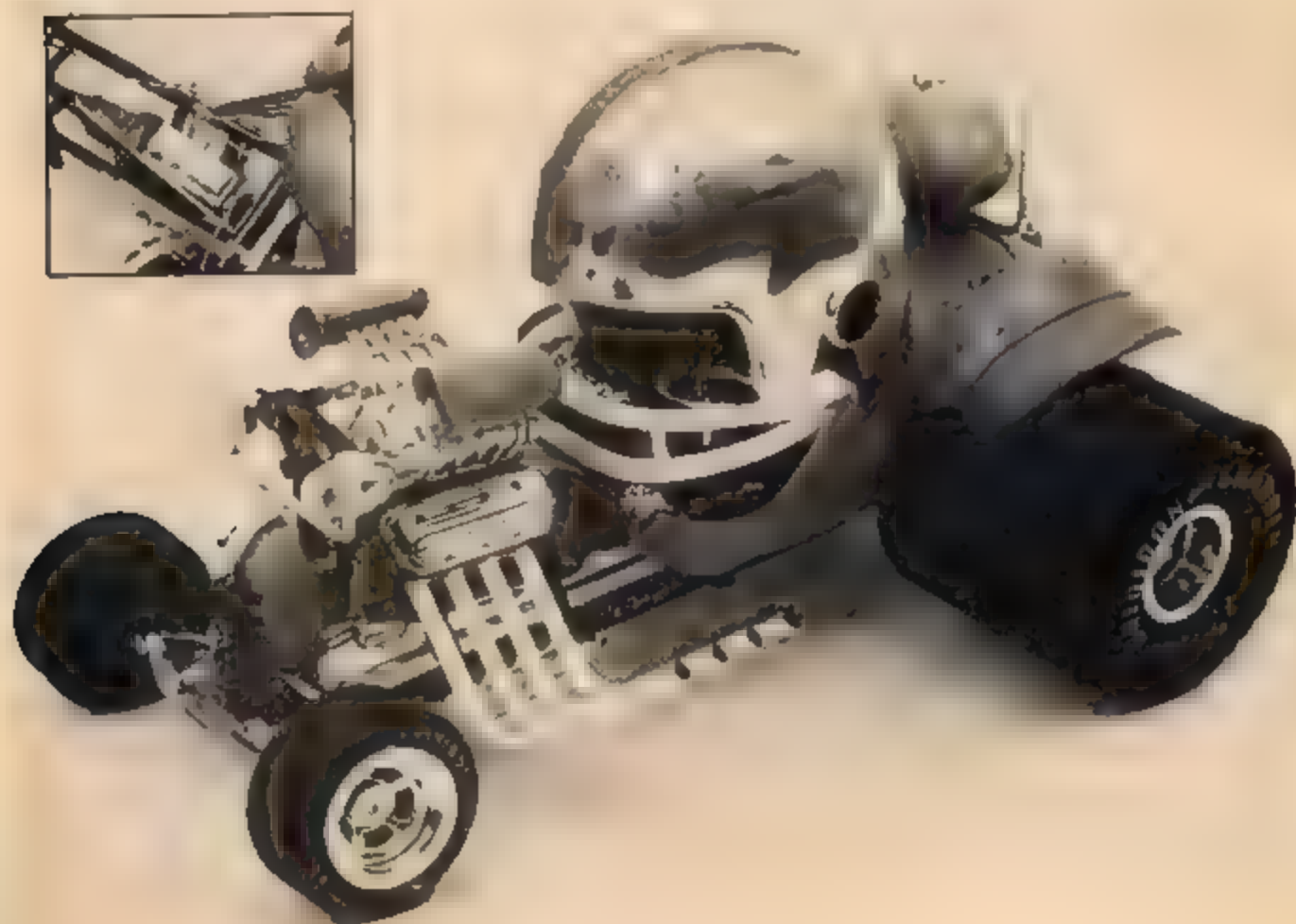
By Robert Schleicher

There was a time when the customized rod was strictly for show and go; little attention was devoted to the other aspects of the complete automobile. Modern rodgers, though, build and show machines that provide power, appearance, stopping, "streetability," and a degree of driver comfort for a "total performance" package. It's true that the very best of the hot rods in today's shows will never see use on the streets, but the majority of them have this full complement of safety and handling equipment in addition

The MPC 1/20 scale "Gridiron Grabber" brings the sport of football to the strip and street with unusual helmet-style coupe body and shoulder pad rear fenders, goal post rear aerial, football gas tank

to their high-speed capabilities. If you're modeling a modern hot rod, you'll do well to follow the format of the big car builders.

Model car contest judges see some of the wildest paint schemes and incredibly-detailed engines this side of the real thing. It's rare enough when a modeler takes the time to provide chassis detailing as well. One of the most visible elements of any chassis is the braking system and all of its lines and fittings. None of the model kits provide such details so it's strictly up to the modeler's ingenuity to devise and fit them. The only thing you need is some No. 18-size insulated solid copper wire, some of your time, and a bit of patience. The chassis, suspension and wheel detail of most MPC and other brands of kits is finite enough to allow you to follow the same general pattern in "rigging" your brake lines that the real cars use. The bit of extra room and detail provided by the large 1/20 scale cars, like MPC's new "Gridiron Grabber," makes the job just that



much simpler. If this is your first try at fitting brake lines, we'd recommend one of the 1/20 scale kits.

The brakes on any modern full-size car are actuated by hydraulic pressure developed through mechanical linkage (and with vacuum-assisted assistance in the case of "power" brakes) connected directly to the foot pedal the driver's foot presses upon. A master cylinder converts the leverage into hydraulic pressure. The hydraulic fluid (and pressure) are piped to each of the car's four wheels where a wheel (or "slave") cylinder pushes against the brake shoes. The brake shoes expand against the brake drums inside the wheels to produce the friction that slows the car. With disc brakes, the system is the same right up to the wheels, a cup-size "puck" is pressed against the "disc" that rotates with the wheel to produce the friction necessary to stop the car.

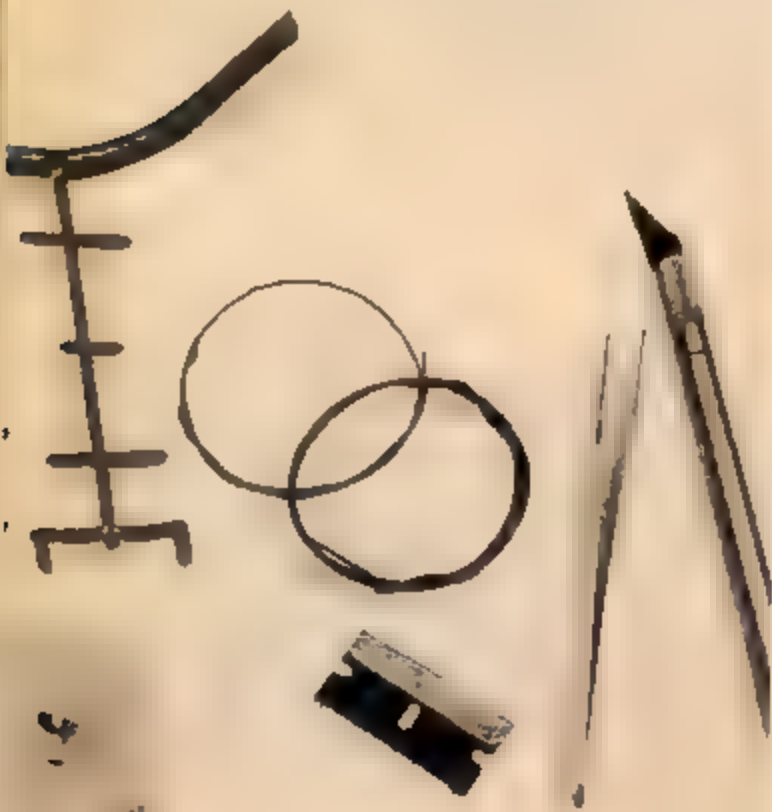
The only parts of the brake system that are supplied with most kits are the foot pedal and, sometimes, the brake drums or discs. Plain metal washers or plastic discs can be glued behind the four wheels to simulate the drums or discs on kit-built models that lack this detail. The No. 18 insulated solid copper wire is used to simulate the hydraulic tubing and hoses. Scraps of the plastic runner, or "sprue," left over from any kit can be cut and filed to simulate the

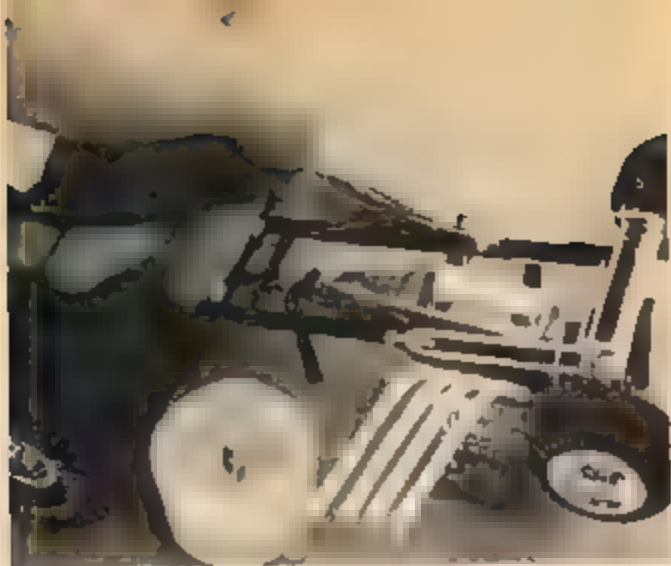
"tee" connection for the lines to each wheel and to duplicate the shape of the master cylinder.

The insulated copper wire is run from the tee to each brake, a separate piece of wire from each brake to the tee. A fifth piece of wire (simulated hydraulic tubing) is routed from the floorboard-mounted brake pedal and its nearby master cylinder to the center of the tee. The area where each piece of wire (tubing) leaves the chassis to reach the wheel is covered by a piece of flexible neoprene hose on a full-size car so that the suspension can move without bursting the tubing (the majority of the frame-mounted tubes on modern cars are steel). On a model, you can simply paint this area of the insulated copper wire flat black and the rest of the wire flat aluminum, or you can cover the wire with a second layer of black plastic insulation as shown in one of the photos. Be sure to mount the wire as close to the chassis as possible. Holes in the frame and/or brake to accommodate the wire can be "drilled" by pressing the point of a straight pin heated over a flame into the plastic to melt a hole. It's best to pre-paint the aluminum-colored portion of the wire before installing it on the chassis. Most public libraries have reference books and how-to mechanics guides on full-size cars and their braking systems that will be a big help in your creating a realistic brake system for your models.

Insulated No. 18 copper wire will make perfect scale model brake lines. Scrap plastic is used for the hydraulic fitting "tees." A heated straight pin drills holes to mount the wire. Use tweezers to shape wire.

One of the "X" areas of any kit's scrap plastic can be cut into a piece with 1/16-inch long legs for a simulated hydraulic "tee" four-way connector. File one side flat to glue against chassis rail.





Holes for the No. 18 insulated copper wire "hydraulic lines" are bored with the point of a pin heated over a flame. Hold pin with pliers.



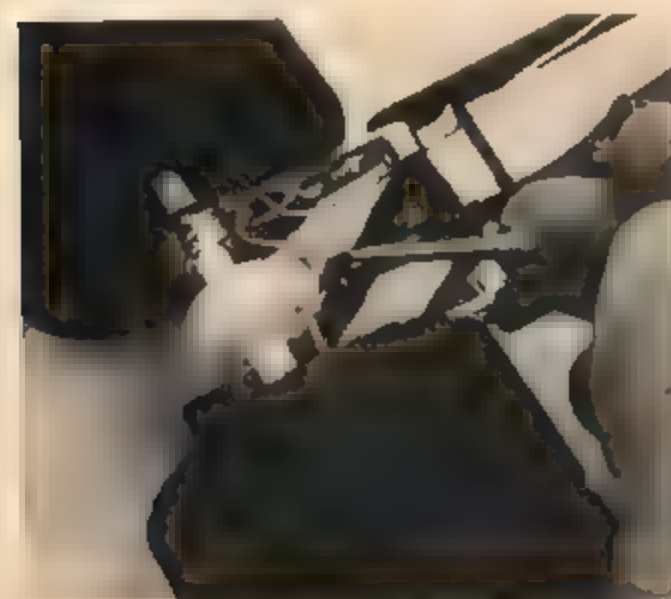
We used the super-detailed 1/20 scale rod chassis from MPC's new "Gridiron Grabber" kit to illustrate the location of typical brake lines.



Heat-drill a hole in each rear wheel's brake. Insert one end of the No. 18 insulated copper wire in one brake, then bend to fit into opposite side.



Use tweezers to bend the wire to follow the contours of the frame or axle. Insulated No. 18 solid copper wire will hold its shape as bent.



It's usually best to pre-paint the insulated copper wire before fitting to the chassis. Short pieces can be painted with a fine-tipped brush after assembly. Dual rear wheels are stock on the MPC "Gridiron Grabber."

16/Model Car Science



Flexible hose connects the hydraulic tubing on a full-size car to the individual wheel's brakes. Simulate the tubing on your model with either flat black paint or a second layer of plastic insulation.



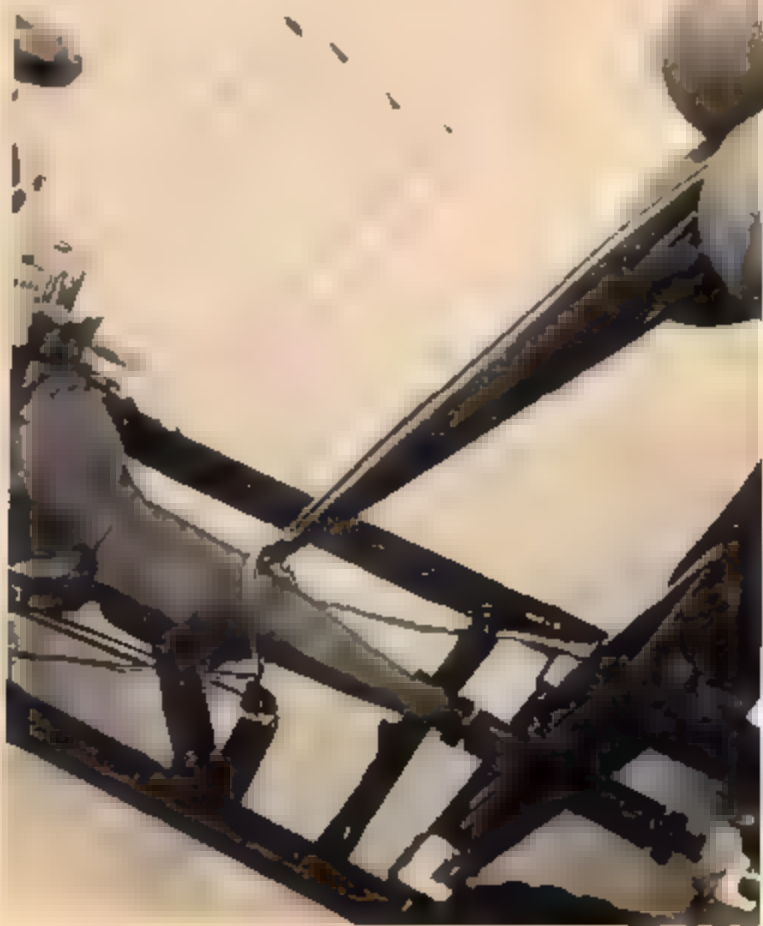
Cut the plastic insulation lengthwise, pry open, and slip into place over the already installed silver-colored insulated wire.



The silver-colored brake lines lend the complex look of reality to the MPC "Gridiron Grabber" hot rod chassis. Similar lines would be found beneath any car and the installation we used will fit any model.



The hydraulic tubing from the brake pedal runs over the transmission and back to the "tee" on this particular car. The master cylinder would be hidden under the floorboards on this car. You could simulate it with another short piece of scrap plastic and paint it flat black.



Part II

If you missed Part One of this series on R/C Auto Racing Basics, you can obtain it by sending 50¢ to: Back Issues Department, *Model Car Science*, 131 South Barrington Place, Los Angeles, California 90049. Ask for the February, 1971 issue.

Part I, in last month's issue of MCS, covered the important facts to consider before buying your R/C car kit — reliability, handling and speed, in that order. Now that you've bought your kit, you're uncertain as to which radio you should choose. With the dozens of different brands and types of radios available that can do the job, it could be a little hard to make up your mind which one to buy. The set you decide on must be a digital proportional type set. This covers about 90% of the radios made today. If you already have an R/C radio that you've used to fly your R/C model airplane or boat, you'll be able to use it for your car, so there's no problem. For the rest of you, don't be afraid of the name "digital proportional radio." You don't have to know a thing about radios. If you can turn a switch off and on, you're qualified.

Maybe I'd better explain the components of an R/C radio set so you'll know what to look for. To start with, there's a transmitter which sends your instructions (turn right, hit the brakes, etc.) to your car via radio signals. The radio signals are picked up by your car's antenna and sent to the receiver in your car. The receiver then decodes the signals and transmits the instructions to the servos utilizing power from a battery pack on the car. The servo receives the instructions and actuates a motor inside the servo to turn in a clockwise or counterclockwise direction for a given amount of time, transmitting the action thru gears to a wheel on the outside of the servo. Normally, you'll just need two servos, one to actuate your steering (right and left) and a second one to actuate your combination throttle and brakes.

Some model airplane R/C radios use six or more servos. The minimum you'll need for your car is two, so there's no need to buy a radio with more than a two or three servo capacity. If price is the deciding factor in your selection,

there are some good radios available in the \$100 range. As the price of the radio equipment goes up, you usually get equipment that is more reliable and has stronger radio signals with more range. Most of these radios have been made for model airplane flying and so have been designed for this purpose. The one I chose was built by Orbit Electronics, 18065 Euclid St., Fountain Valley, California 92708, and was designed expressly for R/C cars. It's called the Cobra model and uses a steering wheel instead of a stick. It has the throttle control on the side of the transmitter for easier operation. This is a three servo system but is packaged with only two servos — all you'll need to start with, and retails for \$199. Also, the servo gears are beefed up to handle the increased loads from car racing.

But one of the main features of the Cobra set is that it features interchangeable crystals. All of these radios transmit their signals over wave lengths that are governed by the crystal in the radio. There are only six different crystal ratings available for these radios at the present time. If you have a conventional radio set, you'll have one crystal in your set. If your crystal is color coded green, for instance, and there is another car already on the track or in your race using a green crystal (determined by a green ribbon attached to the antenna on the transmitter), you would not be able to run because it's impossible to run two cars at once with the same frequency-rated crystals. It's easy to see why: the transmission from either transmitter would be picked up by both cars and could cause both cars to crash. With the Cobra radio, you could easily change your crystals (one in the transmitter and one in the receiver) to another color frequency and go race with no interference problems.

You can easily see the advantage in having a radio with interchangeable crystals, but if you're not very careful with the Cobra radio, that advantage can turn into a disadvantage. The crystals plug into the circuit board that connects all the internal components (resistors, capacitors, transistors, coils, etc.) together, so if you're not extremely careful when you're installing the crystals, you could damage the radio to the extent that it would be unoperable and in need of repair. Also, it's very easy to plug the crystals in without making a good electrical connection. Consequently, the radio will not operate. If this happens, remove the crystal and plug it in again. All of the various brands of radios come with battery chargers, and your batteries should always be fully charged before you attempt

R/C Auto Racing Basics

By Gene Husting

If you're thinking about getting started in radio control auto racing, this article will help you.





Associated's frame is made of .080 aluminum with all components mounted as far to the rear as possible for greater pressure on the rear wheels. The battery pack is on the right-hand pod and the receiver is on the left-hand pod. Both are wrapped in saran-wrap and foam for protection. The Sullivan four oz. fuel tank is mounted in the front of the engine with steering and throttle servos in front of tank. The Veco BB R/C 19 engine is the best available and has a Delta heat sink on the engine head. The air filter has been removed to show the carburetor. A Nor-Kar dual exhaust is used. Big 2-1/2" wide rear tires aid the car's handling.



The Delta Dash II shows a completely different type chassis setup. The Veco 19 engine lays down almost horizontally. The throttle servo is directly in front of the engine and the steering servo is in front of the front axle. The receiver and battery pack are wrapped together in saran-wrap and foam, and secured with rubber bands. The front end is fully adjustable for the best handling possible. The Delta car is one of the most reliable cars made.



The most popular R/C auto radio now being used is the Cobra model by Orbit Electronics. This features a steering wheel for easier driving, with plug-in changeable crystals, on top next to the angled antenna. On the right hand side is the throttle arm.

Hottest new car on the R/C scene is Associated's RC 1 model. This is the best handling, easiest car to drive of any available. The Autocast T1-22 body has a spoiler added to the rear of the body and a wing to give increased pressure on the rear tires for greater traction. The bumper on the front of the car is made of 1/8" piano wire and is worth its weight in gold.

to run your car. Very dead batteries could take as long as eight hours or more to charge back up.

The control of your car is done solely thru your radio, so it's imperative you do as good a job as possible on installing your radio gear. There are two enemies your radio gear will be fighting—vibration and dirt. I wrapped both the receiver and battery pack in saran-wrap to keep the dirt out, then covered them with Sig foam material, available at your hobby shop. Then I covered the foam again with saran-wrap. This insures the electrical components will be kept lean. The foam bundle is then secured to the chassis pan with rubber bands anchored to J-bolts or tape. Some cars have all four of the electrical components grouped together on the chassis and are then covered with a plastic or similar type cover, but this method can not be used on all cars. On Associated's cars, for example, the battery pack and receiver are moved to the outside pods just in front of the rear tires to achieve a more rearward center of gravity (C/G) while the two servos are mounted on the main chassis pan. On Delta's car, you can use the Delta servo mounting brackets which hold the servos quite rigid so there is less play in the linkage. I used Orbit's servo mounting trays on the Associated car because Associated's frame vibrates quite a bit more than other cars. Most of the other R/C chassis or pans are made of 1/8" thick aluminum or equivalent in steel that does not flex, and has a sprung front end with coil or leaf springs. The Associated car has a solid or unsprung front end but they use a thinner .080 aluminum pan which does all the flexing and consequently the vibrating.

When you mount your servos, make sure they're mounted so the wheel on the servo is aligned in as straight a line as possible to the component (bellcrank, throttle, steering arm, etc.) you're attaching the servo rod to. If they're not perfectly aligned, and free operating, they could bind somewhere in their travel, possibly causing the throttle to operate very slowly or even stick in the wide-open position. The servos have just enough power to do the job and not much extra so don't waste any of the power through unnecessary binds in the linkage.

For your next step, send to ROAR, Dept. MCS, 2855 Velasco Lane, Costa Mesa, Calif. 92626, which is the National R/C Car Association. All of the major races are run under ROAR's sanction so you'll have to be certain your car conforms to their rules so you'll be legal for the races. I can't give you much info on the rules at this time, because the new 1971 rules should be out shortly. Also included in the rule book are diagrams of the slalom, road course and oval tracks with dimensions.

The road course is the most popular configuration used, so this is what you'll want to practice on. I used a few dozen large can lids (the part that's cut off with a can opener) which are perfectly flat, so you can run over them without hurting your car. I painted them a bright florescent red-orange so they were more visible from a distance. Each time I went out to practice with the car, starting from the very first time the car was run, it was driven on a road course, not just helter skelter around a parking lot. Even though I was going very, very slow to start with, it was still hard to keep it on the course. You'll be asking yourself, when you first learn to drive, questions like "Now why did I turn left when I should have turned right?" "How come I hit the throttle instead of the brakes?" Etc. But don't let it bother you. We all went through that same stage in learning

R/C AUTO RACING BASICS — PART II

to drive. It's the same old story, practice makes perfect. Each time you go around the course you'll find you're going a little quicker and a little quicker and after a few hours practice, you'll probably feel like you're ready to challenge Mario Andretti to a race. When you're to this point, you're ready for your first race.

Racing with three or four other cars on the track will be a whole new experience you'll have to get used to, but it just adds that much more excitement to the game. I won the main event in the first two races I entered, with the help of a very good Delta car and a lot of practice, which shows that it can be done. You might even be able to do better, but with the right car, properly set up, and some practice, you'll at least be competition for anyone. Here in Southern California, the entries have grown so fast that they've split the drivers up into two groups, amateurs and experts, so that new members can run against others of comparable capabilities. For some reason, I was put into the expert class.

About the time I started running my Delta car, there was a new prototype car from Associated Products being run. This car was designed by Mike Morrissey, who has been famous for many years in slot car racing (and Mike was actually the first pro slot racer). Mike built many slot car chassis that have won big races across the country. The pro-type slot cars do not have independent type suspension for the wheels. The flex required for a good handling slot car is all built into the frame. This type of construction seems to work quite well, as some of the slot car tracks are pretty rough, so it's a pretty good test for this design. Mike decided to use this principal in designing the Associated R/C car. Just about all of the other R/C cars have a very stiff chassis, requiring some type of sprung suspension on the front end. The Delta car is built on this theory and I believe it has one of the best applications of a sprung front and on any R/C car.

For the Associated R/C car, Mike used .080 thick aluminum for the chassis pan, which is considerably thinner than most other aluminum chassis. The thinner plate then allows the chassis to flex for good handling ability. One look at the car will tell you it wasn't designed to win any "best engineered" awards, yet it has two of the most important items that are better engineered than any other R/C car — but they cannot be seen! Probably most important is the car's handling. This car is so easy to drive, it can make an amateur into an expert overnight! It's the best handling R/C car I've seen to date. The second item is the car's clutch. The clutch has a built-in slip factor. Whereas most other clutches are completely coupled up as soon as the clutch shoes contact the drum, the Associated clutch actually is slipping or only partially engaged from 3,000 rpm to approximately 8,000 rpm. This allows a full-throttle standing start with the car going perfectly straight ahead without veering off either right or left. In the esses, the car can easily be feathered so it's almost impossible to spin it out. If the tires get too much bite, the clutch will just slip a little more, so there is a built-in "brake," so to speak. And on the big sweeping turns you can punch the throttle and the clutch allows just enough friction for perfect traction, then the clutch couples up completely when you start down the straightaway so there's no wasted horsepower. By the end of 1971, I predict every other type of R/C car will have to copy this type of clutch or their cars will be obsolete.

20/Model Car Science

As you've probably noticed, I've said nothing about the Associated car's reliability factor, which is the all-important factor in winning any race. But first let me clarify that DNF (did not finish) on the first five races of the Delta car in the Part I article last month. While leading the main, I ran into a spun-out car in the esses, sending my Delta car rolling end over end. The pickup in the fuel tank got caught in the fill tubes in the top part of the tank and when the car was righted, it would not pick up any fuel. By the time the problem was solved, the race was over. But this had nothing to do with the Delta car, as such, so its reliability factor is still very high.

In order to give you a fair appraisal of the Associated car's rating, I put it together in stock form with the exception of ball bearings in the clutch and rear axle. Bushings never did appeal to me. At my first race with the Associated car at the San Fernando Valley club's race, I had top qualifying time, just edging out Mike Morrissey, who was running the G.P. version of the Associated car. I then won the trophy dash, the car was running great! In the first heat, I hit a cone marker that had gotten knocked out in the middle of the course; the car went end over end, breaking a rear wheel. I had one of the pre-production kits when they were still experimenting with different plastic materials. The rear wheels are now made out of Lexan, so that problem is cured. In the main event, I was leading the race, after five laps, when I hit another misplaced cone marker, bending the tie-rod attaching arms. The car would not turn right, and by the time we hurriedly straightened it out, Mike Morrissey took over the lead and kept it for the win, with my car finishing second.

In preparation for the next race, I beefed up the front end by using a tie-rod similar to the one on the Delta car, made new tie-rod mounting brackets, and spring loaded the steering servo linkage to prevent anything from breaking. I also installed a MAX 19 carb on the engine, as I was having tuning problems with the stock Vaco carb. On race day I was at the track trying to get the new carb tuned in, when this guy in a Volvo (1-1 scale) pulled out of the pits and ran right over the front end of my car! Luckily it was repairable (thanks to that bumper again) but by the time I got it repaired, I missed the practice session on the new San Fernando Valley course. It was a beautiful layout with six separate turns and very interesting to drive. My carb was set a little too rich but I still managed fourth fastest qualifying out of 21 entries, with that guy Morrissey again taking 1st place. I won the trophy dash, my heat, and then won the main event. We were using board strips to mark the inside corners, so if you cut an inside corner you ran over the boards. This knocked a few of the cars out of the race, but the way I had set up the front end I had no problems whatsoever.

All the parts that I used to put my Associated car together were pre-production prototype parts. Since I built my car, they've changed the wheel material, changed the front axle and tie-rod bracket material and changed the rear axle bracket material. They're continually improving their kit. How do I rate the Associated car? It's the best handling, easiest R/C car to drive, it's almost a full pound lighter than any other R/C car (and consequently will be faster accelerating), and with the newer parts it should be on a reliability scale with most other R/C cars. If you're not running an Associated car, you'll probably be beaten by one.

THE CHROME TREE

By Ben Millspaugh

of the
The care and feeding
"Chromus Treerus"

Chromus Treerus, that beautiful member of the Sprue family. A delicate little plastic thing that requires some special care and feeding from every enthusiast. We plan to show you how to care for your tree. I've seen beautiful models with excellent paint jobs ruined by the presence of a grubby chrome bumper or other chrome piece.

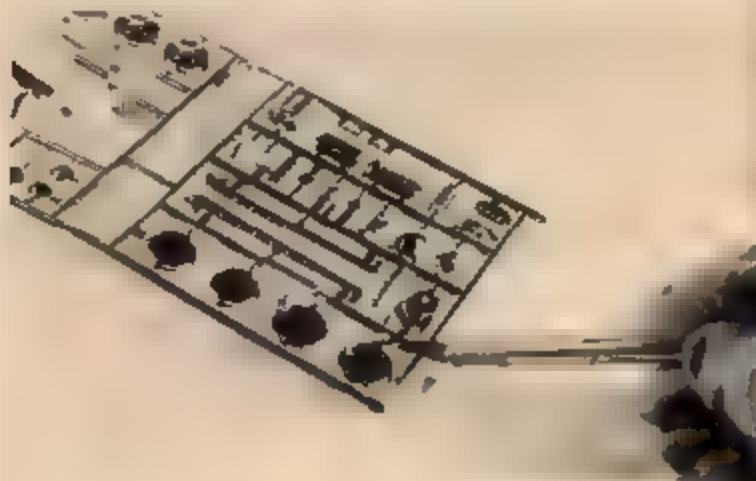
First, understand that this is not hard chrome. It is a special coating that is "blown" onto the plastic, and it is extremely delicate. Chrome trees require "kid gloves" treatment and that is a bad pun for the surgeons gloves that we recommend. These gloves keep finger oil and other contaminating material off the chrome.

There are several methods of getting the chrome pieces off the tree, but by far the best method is to cut them with an X-Acto knife. After removing the pieces from the tree, shave them down, and where you've messed up the chrome, simply paint with silver paint or hit it with RUB N-BUFF gilt finish.

If you plan to enter your model in a show, every detail counts for points. Outstanding paint jobs or beautiful putty work can only be ruined by the presence of bad chrome. Take your time to do it right and you will be one step ahead of the crowd. After all, isn't that what competitive model building is all about?



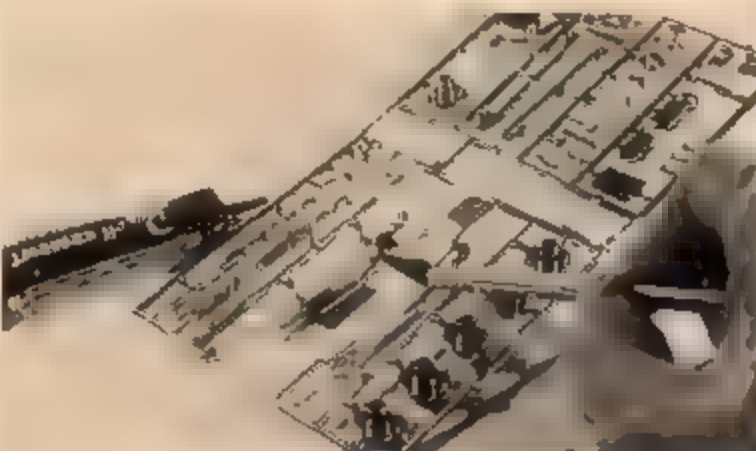
This may look weird but wearing surgeons gloves keeps the contaminants off the chrome.



Always use a very sharp blade to remove the parts from the tree. Cut away from the part, slightly, so you don't get a flat spot on a curved surface. Then carefully trim back to the part.



A drop of silver paint on the point where you have trimmed it will sufficiently cover the flaw.



Don't forget, you can't expect cement to stick to chrome. Therefore, the plating must be scraped away from the plastic if it is to be cemented.

The kit was manufactured by MPC, but the skill and imagination was supplied by 13-year-old Larry Locke.



The Ultimate Dodge Charger

Part of my duties for *Model Car Science* include judging contests of all types. The smaller contests are staged at high schools while the larger are featured in MCS. Each month our "Model of the Month" contest draws an astonishing number of entries. The all-time champ of contests was the recent Monogram-MCS contest where the grand prize was a full-size show car known as the "Predicta." This giant contest drew a flood of entries from all parts of the world.

So what does all of this mean? Well, as expected, some of the entries were outstanding and others were average. Also (as expected) the best models were turned in by the Senior modelers.

Tom Nakasone of the TG&Y store located at 5311 Centinela, Ladera Shopping Center, California, has been organizing regular contests for several months. The number of entries has necessitated three classes, one for 13 and under, another for 14 to 18, and senior (19 and up). I was asked to judge Tom's latest contest, and it held some surprises for me.

With some entrants in their late twenties I was amazed to find that the overall high point winner was thirteen years old! Using a system based on a one hundred point plan, our winner, Larry Locke, had an unheard total of ninety-eight! The only area in which Larry was lacking, through no fault

of his own, was originality. The car is patterned after a typical NASCAR stocker, and was, therefore pretty restricted. I had almost doubted Larry's age until I met him and saw the kind of work he can do.

Larry spends many hours researching a car if it is to be a model of a specific car. His sources include pictures cut out of *Motorcade*, *Popular Hot Rodding* and other such magazines. His next step is to decide how many details he wants to include, and how to go about creating them.

Larry said, "I'll cut out pictures from 'Model of the Month' and place them above my desk along with tips from Question Session' and 'Back to Basics.'"

When asked about his other interests Larry replied, "I own a Honda Mini-trail 70, Cat 400-X mini bike and Honda Scrambler 70. I enjoy motorcycles and mini bikes. I'll soon start training for trials with some help from a friend."

Larry has been building models now for two years and has found that the magazines have been his greatest help. His success is proof that a person's age needn't keep him from building good models. If you'd like to contact Larry Locke and rap about his models or yours, drop him a line at 10537 Dalerose, Inglewood, California. Time permitting, Larry will answer any letters that include a self-addressed stamped envelope.

By Bruce Price

The basic car is an MPC Dodge Daytona Charger. The normal high-rise spoiler has been replaced by a down-to-earth Talledega style spoiler. The rear end has been molded flush with the rear spoiler and features a push bar made out of brass rod. Check out those realistic looking valve stems!

The nose of the MPC Charger was opened up and replaced by wire mesh. The tires are MPC's wide tires.



SPECIAL FEATURES OF THE "ULTIMATE DODGE CHARGER"

CHASSIS

Metal drive shaft; differential fan;
Differential drain plug; differential cooling duct; brake lines; brake cooling duct; metal traction rod; worn tires, valve stems,
Gyro mags, All wires put in engine compartment,
Hand-made axle; double knee action springs, metal axle bearing, lower rear end; front wheels made from four rims. Neoprene fuel line; twin electric fuel pumps, safety chain on gas tank, gas tank drain plug; oil bolts on frame reproduced in metal, foam padding on gas tank to shield vibrations.

ENGINE

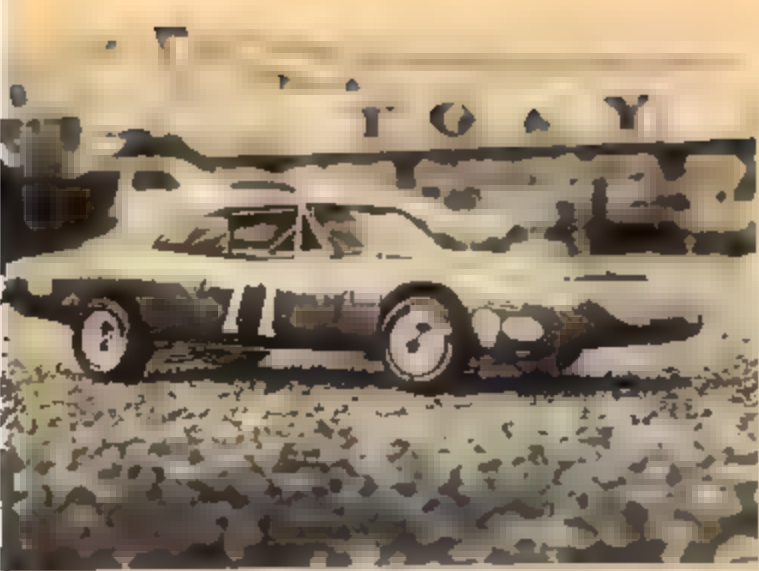
Ignition lines; spark plugs; coil wire,
Engine offset to balance car in corners,
Machined pulleys, rubber fan belt,
Carburetor and air cleaner bolted to manifold,
Torque rod, opened headers, header overflow-tubes, battery with bare ground lead & power lead, battery hold-down strap, triangle air-cleaner; holes bored in block for extra cooling, engine serial number, bolts on transmission, transmission drain plug; transmission hook-up for optional five-speed,
Radiator hose; radiator overflow tube,
Starter cable with protective shield;
Oil vent hoses; oil filter drain plug; oil pan drain plug; extra-deep oil pan.

INTERIOR

Gas pedal operates linkage,
Working brake & clutch pedal,
Cloth floor mat, bucket seat (bolted on),
Scratchbuilt fire extinguisher,
Idiot lights, head rest, switches,
Handmade metal roll cage (brass tubing)
Nylon seat belt and buckle,
Cooling duct,
Working shifter,
Lightened steering wheel,
Padded dash with friction tape,
Seat risers, combined oil & tachometer gauge.

BODY

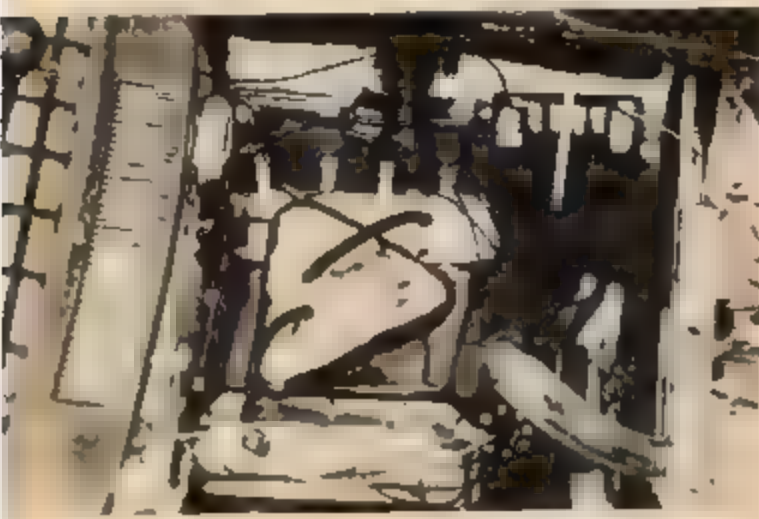
Talledega-style spoiler, flush rear end,
All lines & fender lips removed,
Scoops molded into body, acetate windows,
Hood pins with cables, metal push bar,
4 Coats silver, 8 coats sapphire blue paint,
Opened nose vent with filter screen,
Body bolted to frame; asbestos padding,
Bolts on firewall,
Holes in rear window to release trapped air



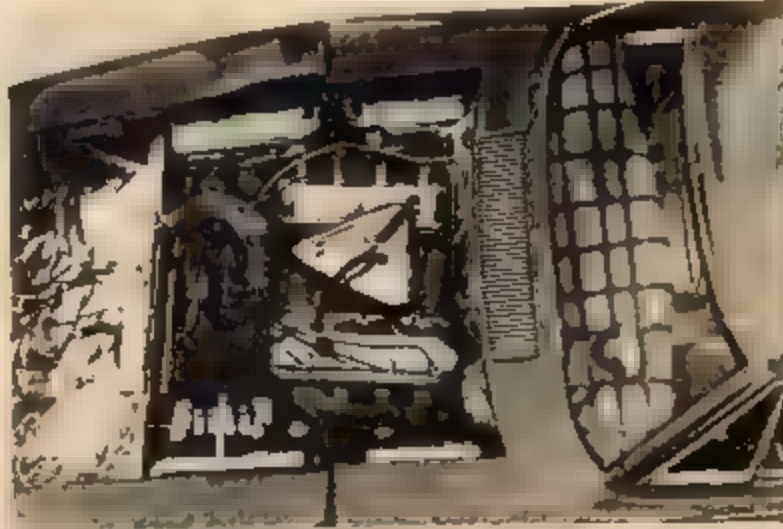
The hood is held on by very realistic hood pin locks. The tires have been detailed by dry brushing the letters with flat white paint and sanding the tread to make them look used



Nothing was left untouched when it came to detailing the car. The battery includes a braided wire ground strap, red power lead tie-down strap, yellow inspection caps and silver terminals



The engine was offset in the frame to balance the car in corners. The spark plug covers are simply pieces of insulation from wires. If you look carefully you'll see individual wires on the fire-wall



The pulleys on the front of the engine were scratchbuilt, and yes, they rotate with the fan belt! Even an engine serial number appears on the engine block!



The radiant blue and white paint scheme of the car is high-lighted by touches of red, white and blue inside the spartan interior. Look closely and you'll see a hand painted American flag on the steering wheel hub.



The roll bar was made out of brass tubing soldered together and spray painted. The interior includes nylon safety belts (with aluminum buckles), detailed gauges and all necessary safety equipment



The rear window is braced to prevent it from exploding at high speeds due to a high pressure area normally created there. Holes were drilled in the window to release air pressure within the car



The starter motor is usually overlooked on a model, but this one is hooked-up. The engine detail even includes a separate drain plug



The undercarriage was detailed as intricately as the rest of the car. Fishing line and bare wire were used for lines, wiring and linkage. The gas tank is isolated against vibration by foam rubber and is held in place by jewelers chain.



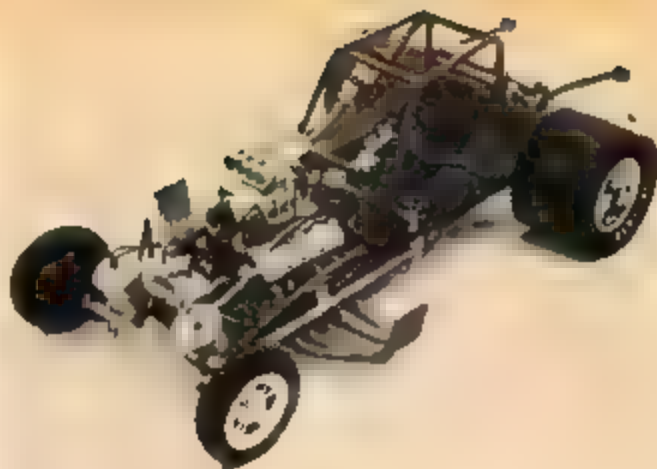
The nose was blended into the body with putty and the vents were opened and are backed by fine wire mesh.



It's refreshing to see a model that has decals installed tastefully (and not in excess). Too many cars look like the decals were applied with a twelve gauge shot gun.

How often have you looked longingly at one of the hot rod magazine's photos of your favorite racer, hoping you could paint and model a miniature of just that car? Most often, there's a kit that would nearly match the body and chassis style but the lettering and sponsor logos are enough to tax an artist's talents. The answer to a modeler's plea would be some magic that would allow you to somehow lift the photo from the magazine and apply it to the side of your model—not the paper-n-paste style but to literally lift the lettering so it would look like it was hand-painted on your model. We heard about just such a "magic" compound and decided to give it a try on Revell's fabulous funny Maverick drag racer kit.

Revell's 1/25 scale "Maverick Funny Car" kit includes a completely-detailed rail chassis, blown big-inch Ford mill and the widest drag slicks ever seen in miniature. The slightly stylized Maverick body is close enough to the hottest of the Ford "strippers" to allow you to match any full-size Maverick you wish. We picked the box art "logo" from Revell's kit just to show you how our decal discovery is done. Revell provides nearly two-dozen sponsor decals with their kit, far more than we had room for on the sides of our Maverick. The car to be "decaled" with magazine color photos or box lid art is assembled following the kit instructions to the letter. Prime the body and paint it to



We assembled the Revell "Maverick Funny Car" chassis exactly as outlined in the instructions. All the details except the engine wiring are part of the kit. We especially like those ultra-wide rear slicks.

The Revell "Maverick" body is assembled, primed and painted in the normal manner to prepare it for our custom-made decal markings. Mount the body on the chassis, temporarily, to check clearances and fit. The stock kit provides snap-on, hunge-up mounting at the rear.



suit your standards; have the car ready to go except for normal decals.

The decal-making fluid is sold by many hardware, hobby, artists' supply, and craft stores under the trade name "decal-it" as part of Patricia Numock's line of craft products. "Decal-it" is a milky fluid that is applied to the illustration you wish to make into a decal through the tiny applicator built right into the bottle. The instructions recommend that you apply six coats, waiting 15-minutes between each coat. We found that a more realistic model decal could be made with a single coat but you'll have to practice with the fluid and some other illustrations first, to perfect the technique. The fewer the coats, the thinner the decal. Six coats makes a decal with the clear coating about as thick as two pages of this magazine, a single coat makes a tissue-thin decal that really looks like it was painted on. The thinner decal, however, is very easy to rip or stretch during the soaking and paper-backing removal process, so be careful.

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DO-IT-YOURSELF DECALS

By Robert Schleicher

Can't locate those "just right" decals? Make them yourself! It's easy.



Any color ad or illustration can be used to make your own decals. Apply one to six coats of "decal-it" fluid.



Allow at least 15 minutes between each coat of "decal-it." When thoroughly dry, trim the "decal" you have coated close to the letters.



Soak the trimmed "decal" in plain water for at least an hour to completely soak the paper or cardboard backing. Coat one for each side. When the "decal" backing is soaked through, place the "decal" face down on a smooth hard surface and gently roll off the backing paper in layers.



When all of the paper backing has been rolled away, only the colored portion of the ad or illustration will remain on the clear surface. Dry for an hour or two, then apply a thin coat of "decal-it" to glue to car.



Position your decal exactly where you want it and press in place. Allow an hour to dry. Color photos of the names and sponsor logos from full-size car photos can be used just as easily as this. Revell provides dozens of accurate sponsor decals in this kit. Position these decals to match the real car you are modeling and dab dry.



Apply a coat of clear enamel (check it on an extra decal to be sure it won't dissolve the decal) or a thick coat of wax to blend the various decals into the shine of the body's color and surface finish.

GREAT CONTESTS WINNING MODEL CARS

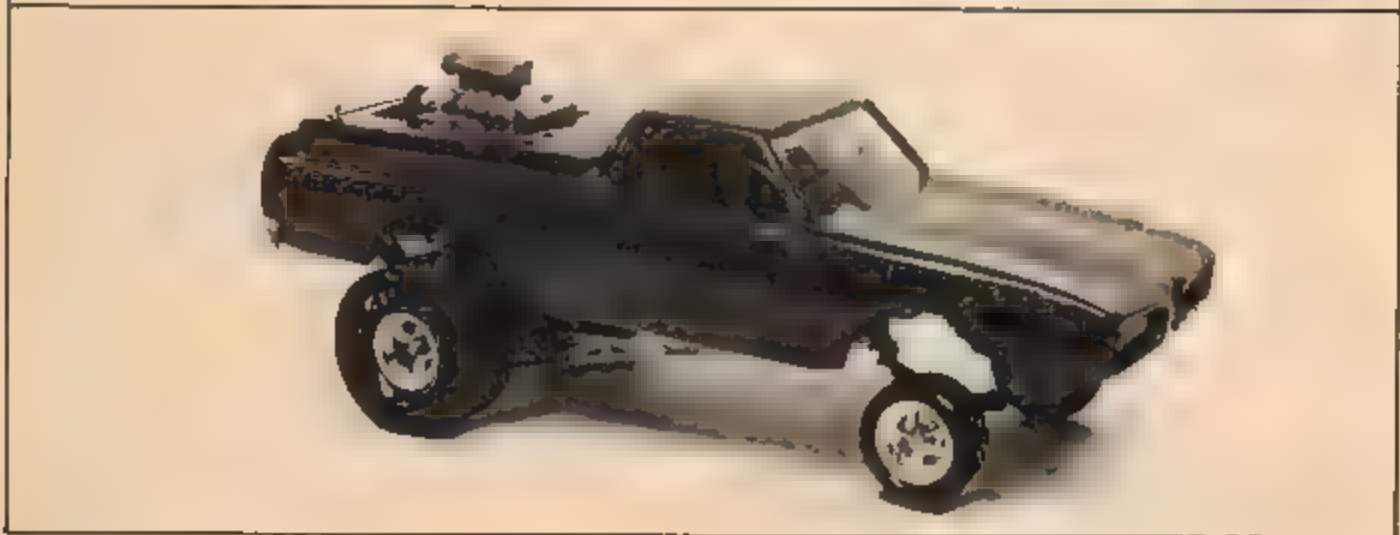
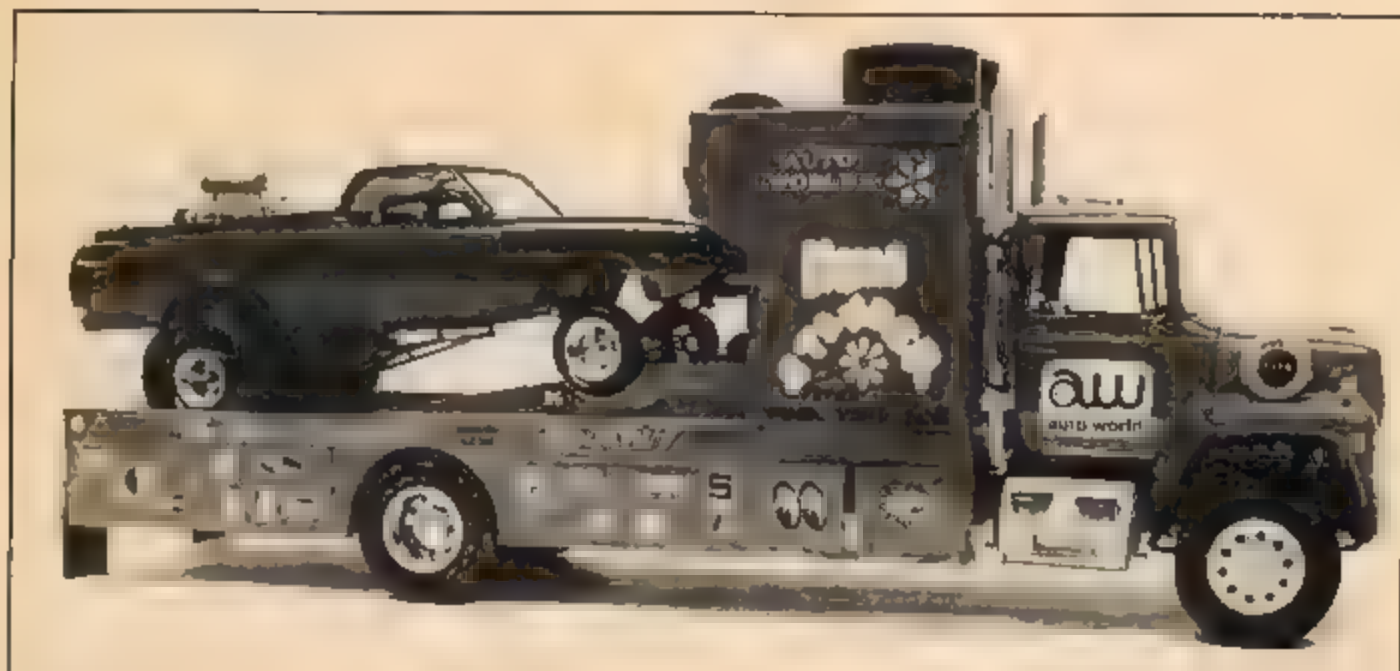
Here, from the two latest MPC model car contests, are photos of some truly great model cars. Use these builders' ideas on your own models to improve your model building.



3RD ANNUAL MPC MODEL CAR CUSTOMIZING CONTEST

Minneapolis, Minnesota

Nov. 13-15, 1970



BEST OF SHOW

Roger Clark (17)
3826 Zenith Ave.
Minneapolis, Minn



SENIOR

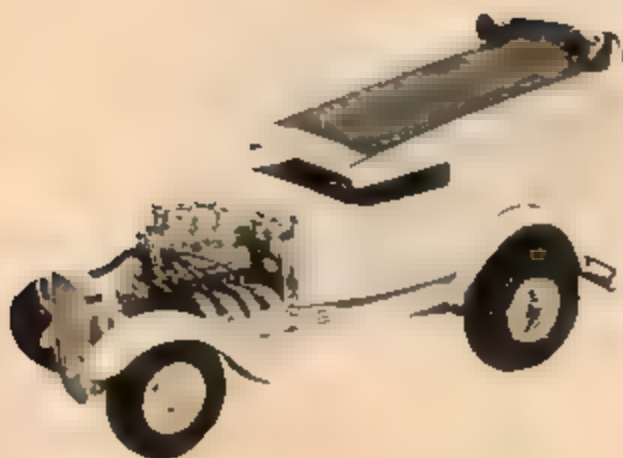
1st

Rick Smida (13)
6912 Lombard Lane
Minneapolis, Minn.



2nd

Jeff Johnson (13)
16417 No. Temple Dr.
Minnetonka, Minn.



3rd

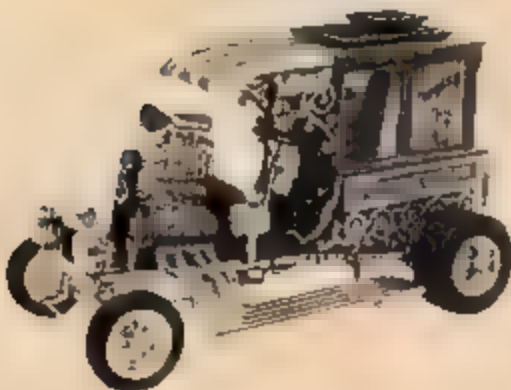
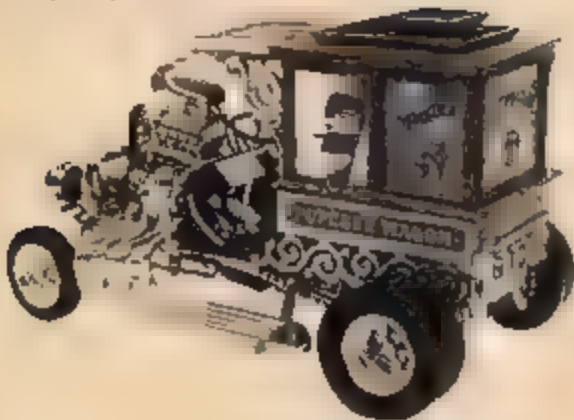
Dave Zdon (14)
4203 Madison N.E.
Minneapolis, Minn.



ADULT

1st Adult

Richard A. Sandstrom (24)
4812 Upton Ave. So.
Minneapolis, Minn.



2nd Adult

James Davis
810 N. Hazel
St. Paul, Minn.



3rd Adult

Michael Jeannette
6301 Lyndale So. ◊
Richfield, Minn.



1st Junior

Mike McDougall (11)
5725 21st Ave. So.
Minneapolis, Minn.



2nd Junior

Tim Johnson (11)
16417 No. Temple Dr.
Minnetonka, Minn.

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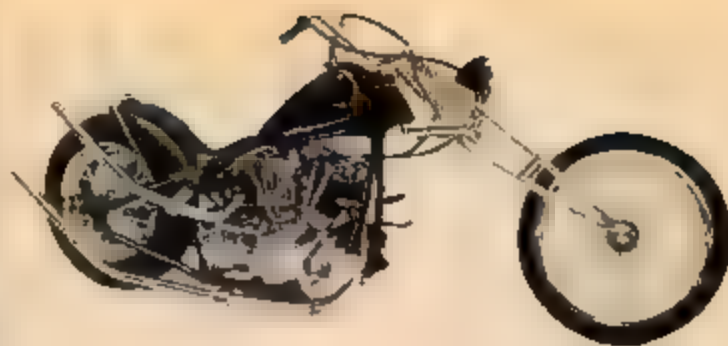
3rd Junior

Kevin Carter
7661 Atherton Way
Eden Prairie, Minn.



BEST ORIGINALITY

John Bado (13)
1528 Linzie Rd.
Duluth, Minn.



BEST MOTORCYCLE

Jay Swanson (15)
4817 13th Ave. So.
Minneapolis, Minn.



BEST PAINT

Scott McDougall (15)
5725 21st Ave. So.
Minneapolis, Minn



3RD ANNUAL MODEL CAR CUSTOMIZING CONTEST

held in conjunction with 9th Annual International Rod & Custom Show
Chicago, Ill. November 20, 21, 22, 1970

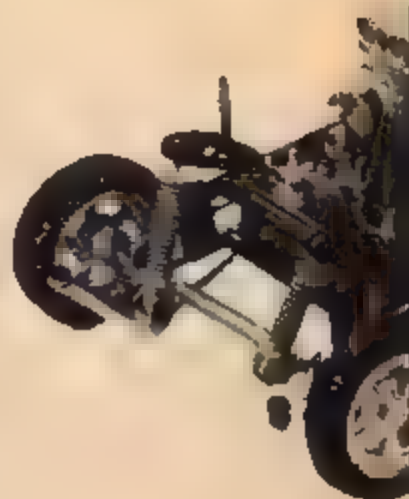
Our second show of the season at the International Amphitheater in Chicago, Illinois, had a real swinging turnout. Four hundred and fifty rods, customs and bikes really drew the crowds. At the MPC booth we had an equally good turnout. There were three hundred and eighty-nine entries, fifty percent up from last year.

The quality of the models was excellent this year; they just keep getting better with practice. Paint jobs are getting wilder and detailing is definitely fantastic. Hank Borger, whom I'm sure everyone knows, had many fine examples of detailing as well as paint. Hank and his wife assisted at the booth and were a great help.

Brad Gale, who hails from McLean, Illinois, won Best in Show with his Corvair funny car, an excellent job all the way around. The frame was completely scratchbuilt from brass tubing, as was the inner body panels. The body was reworked, as you can see in the photograph. The car also featured working suspension and steering. His paint finish was flawless. Brad received the three foot MPC Carl Casper Best in Show trophy, along with three MPC model kits of his choice and the MPC certificate of merit for his fine work.

Appearing at the shows for the first time was the life-size version of MPC'S "Zinger Super Volks," which was located in front of the MPC display. You'll have to see it to believe it; it's just unreal. The Volks was built by Chuck Miller, who also built the Fire Truck of Detroit for Promotions, Inc. The original idea came from a model built by a model car buff from Euclid, Ohio.

The Volks stands about five feet-eight inches to the top of the blower scoop. The body is about two feet wide by four feet long. It really boosted the sales of the Zinger kits. Chuck is also building the Super 'Vette and the Super Van, which will be at the Detroit show the 22nd of January. After that, something really wild, but we'll save that one for a surprise.





BEST OF SHOW

Brad Gale (17)
R.R. No. 2
McLean, Ill.



1ST ADULT

Bob Behouneh (20)
4404 S. Grove
Stickney, Ill.



2ND ADULT

Jerry Uchida (19)
6940 W. 34th
Berwyn, Ill
36/Model Car Science



3RD ADULT

Andrew Delarosa (18)
310 W. Sq. St.
Merrville, Ill.



1ST SENIOR

Al Suhajda
114 Pueblo Rd.
Carpentersville, Ill.



2ND SENIOR

Terry Niemec (15)
3000 W. 40th St.
Chicago, Ill.

3RD SENIOR

Steve Nowaczek (15)
4724 N. Kewaner
Chicago, Ill.



BEST MOTORCYCLE

Al Suhajda (16)
114 Pueblo Rd.
Carpentersville, Ill.



1ST JUNIOR

Bob Leski
1734 N. Lotus
Chicago, Ill.



2ND JUNIOR

Greg Sobanski
3237 S. Archer
Chicago, Ill.

38/Model Car Science



3RD JUNIOR

Bob Bilski
2942 S. Emerald
Chicago, Ill.



BEST DETAIL

Al Suhajda (16)
114 Pueblo Rd.
Carpentersville, Ill.



BEST PROFESSIONAL

Hank Borger (27)
6702 W. 34th
Kenosha, Wisc.



BEST PAINT

Jim Kryz (20)
5054 W. George
Chicago, Ill.

The Ben Millsbaugh Story

Presenting the third "Personality Profile" feature on our writers.

In the capacity of a professional aviation writer, Ben has flown many of the Air Force's hottest fighter planes. Here he's climbing aboard the famed F-105 Thunderchief



Ray Hoy has asked me to contribute my end to the "Personality Portrait" series on the tech editors. I am going to follow ol' buddy "Brck" Price's lead and tell it first hand.

To the model enthusiast, I probably would be one of those guys that you've heard about, but never met. I've had the opportunity to drive or fly most of the models that I enjoy building. I started out with a devotion to aircraft but after seeing a Maserati 200S perform at a local SCCA airfield event in central Oklahoma I knew that this sound and sight must be fantastic. Since my brother, a bomber pilot, was killed in the famed WWII Ploesti Raid, my family frowned on my interest in aviation and didn't say much about the flair for cars.

My first sports-type car was a Studebaker Hawk, and I really enjoyed that machine. It didn't perform with the European jobs, but it was as close as I could come on a college budget.

After graduating from college I bought my first real sports car and that was an XK-140 MC Jaguar. This car was a fantastic "girl-machine" but I almost starved to death trying to support it.

The next car was an Alfa Veloce which qualified me for the SCCA and I soon went broke trying to campaign this fine machine.

The next step was a Porsche and I fell in love with the marque. Since then I have owned three and my present car is a 912 coupe. I thoroughly enjoy the machine and wouldn't trade it for anything under \$10,000.

I've had the opportunity to drive most racing marques and my all-time favorite there was the Testa Rosa Ferrari. The ear-splitting, canvas-tearing exhaust roar of that car simply sends cold chills up my spine even to this day.

From the cars, my interest in aircraft grew stronger. Although I never had the opportunity to fly for the air

force, I did land a job as an instructor with United Air Lines and had the opportunity to fly some of their finest planes.

The model magazine business has always been a fascinating hobby sideline for me and I used my experience in aircraft to get into the ranks of a contributing writer for the famed *American Aircraft Modeler*. This magazine opened a brand new channel for me. I felt that the world of model builders would be interested in what it was like to fly some of the Air Force's finest fighter jets and fighter-bombers. I wrote the Secretary of the Air Force and asked if I could do a series of articles on what it was like to fly these planes by taking orientation flights in them. The USAF agreed. I started with the T-38 Talon and worked my way up through the F105 Thunderchief and the fantastic F-4D Phantom. More flights are in progress, and believe me it is a real experience to fly this crop of super-sonic hotrods.

I quit my job with United some time back and returned to a job that I enjoy very much, I teach aeronautics at Littleton High School, a suburban school near Denver Colorado. In my spare time, I work with the Civil Air Patrol and, of course, write for various magazines.

The model part of my career started back when solid plastic and stick, balsa planes were in vogue. I progressed up through scratchbuilding of race-cars, to slot racing and back again to aircraft and automotive, both in static and radio control. My family (a lovely wife and two young ones), seems to go along with all of these activities and my 10 year old son helps me with the articles (he gets the cars for his shelf and I get the planes). All in all, it has been a good life and, while maybe not as adventurous as the rest of the fine staff writers, quite rewarding to an old Oklahoma farm boy.

Peace to all of you. It's been fun talking to you.



Captain Ben Millspaugh receives the coveted "Senior Officer of the Year" award for his work in the Colorado wing of the Civil Air Patrol. Presenting the award is Wing Commander, Colonel Max Fountain. To Ben's left is his lovely wife Linda.



Several years back, Ben broke into the "big time" in aviation when he landed a job as Flight Engineer Instructor with United Air Lines. This DC-6 was his first transport. Because of the job, and the hours, Ben later decided to return to his present love, working with young aviation and automotive enthusiasts.

By profession, Ben is a high school aeronautics instructor. Here he receives an award from the Cessna Aircraft Corporation for his work in aviation. The representative of Cessna is *Air Age* Director, Frank Mitchell, on the right.



An Air Force photographer caught this shot of Ben and his I.P. shooting a "touch-and-go" in the North American T-38A Talon jet trainer.





Ben with his pride and joy - a 1966 Porsche 912. He bought this car new, and with meticulous care, it still gives great everyday service



Watch Next
Month
for the
Winners of
the MPC
"Zingers"
Contest!

Putting the finishing touches on the unsung hero.

DRIVER DETAILING

A well-detailed driver can add a lot to an otherwise "ho-hum" car. The driver used for this article is from the new MRC-Tamiya Lola T-160 Can-Am car and because of his size, it will be easier for you to see what details can be added to the plastic "human."

You can easily detail in 1/24 and 1/32nd but it becomes a little more touchy in the "upper scale range." Once I tried to detail the two airline pilots in a 1/144th scale plane and they looked like fugitives from a monster story. However,

By Ben Millsbaugh

since the greatest amount of building is in the 1/12 to 1/32nd range let's assume that you are talented enough to put some expressions on the guy in the bucket seat.

A driver doesn't have to look like a dummy. He can be given expression by using various colors for "washes" on the basic flesh tones. Dark skinned drivers can be given various shades of olive and tan and they look very realistic. The average driver, nowadays, is covered completely with the fire resistant Nomex underclothing and when you add a Bell Star helmet, your driver's face is all but eliminated from the scene. However, you do have the task of bringing out the features around the eyes, and this isn't too difficult.

For some color details, look in the latest issue of *Road & Track* and leaf through it until you find Villem B. Haan's advertisement. You will see some very good photo reproductions of racing suits and accessories that will be very close to the desired shades. Simply, then, mix your colors to get the right match and you're on your way to super accuracy. For manufacturers' ad patches, and specific names on the suits, I suggest that you take a look at several of the back issues of *Autoweek & Competition Press* for details.

If your model is going to be a specific one, use good references for color and authenticity. The Haan ad in Road & Track and issues of Autoweek & Competition Press are among the best. In the June, 1969 issue of Road & Track, a great article on current trends in driver wear was run. It was called "Well Dressed Racing Driver." You can probably send 60¢ to Road & Track and obtain a back issue. Write to Bond Publishing Company, Road & Track Magazine, Dept. MCS, 1499 Monrovia Ave., Newport Beach, Ca 92663. Include 60¢ and specify the exact issue you want.



The first step in driver detailing is to sand off those mold lines. These can be found on the side and over the top of the helmet, along the arms and down the outside seam of the suit.



The driver looks somewhat more realistic if you cement his head on so that it is turned to one side. Don't forget to position his hands so they are right for the steering wheel when he's installed. Using Pactra's Light Earth flat paint, spray the face opening and let it dry thoroughly.



Now, a "wash" of 50% red and 50% flesh in a two parts thinner to one part paint is touched on the cheeks and on the nose. Then a two parts thinner to one part black "wash" is touched into the eyes. The eyes are then carefully touched in blue or brown.



The entire face area is now masked with Magic Masker, a liquid rubber compound that can be obtained at any good hobby supplier.



The helmet is sprayed with a gloss lacquer such as AMT's Polar White, and the suit area is sprayed with a flat white such as Pactra's Primer White.



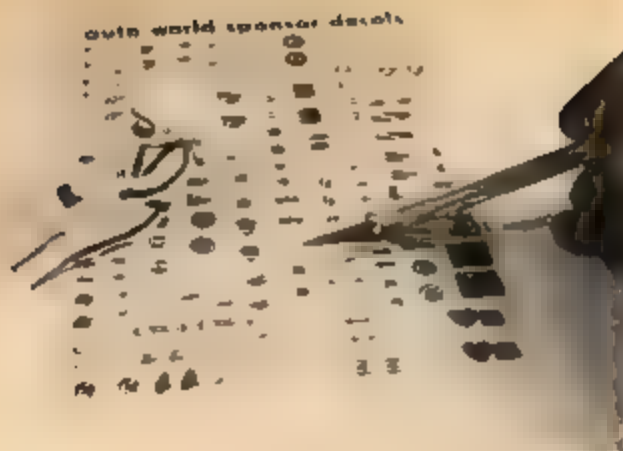
If, after painting, you find that the shoulder seam is a little too deep, you can fill the seam with a white glue. This will "soften" the line.



AG or Chart Pak striping tape is very effective for the straps. This tape is 3/32 matte black. Check local art or hobby shops.



The light blue side sleeve stripe is painted in, using a flat blue such as Pactra's XF-8. The line was first penciled in, then carefully painted.



Auto World's sponsor decals will supply most of the needed emblems if your driver happens to have a sponsor. The emblem on the Bell Star helmet is just the right size for this 1/18th scale brain bucket.



For super detailing the buckle assembly on the competition belt, here's a look at the real thing.



Using the face shield size for a guide, and some pins and a pin vise, make a full face cover for your driver (if he's sporting the Bell Star). Rit dye, in orange, will dye the clear plastic to the amber color, if so desired.

46/Model Car Science



A few small touch-up details and the driver should look like this. A little care to add a great deal to that fine model.

QUESTION- AIRIE

With just a bit of your time, you can help us plan future issues of Model Car Science to better suit your modeling desires. Just fill out this questionnaire and mail to the address shown. We'll sift through the information carefully, and shape MCS to suit your needs. Fair enough?

My favorite category

(You may check as many as you wish)

- ☐ Slot racing
- ☐ Classic cars
- ☐ Model trains
- ☐ Die-cast miniature cars
("MATCHBOX" and similar)
- ☐ R/C gas-powered auto racing
- ☐ Military vehicles
- ☐ Model rockets
- ☐ Model airplanes
- ☐ Model motorcycles
- ☐ Detailing features
- ☐ Customizing features
- ☐ Painting articles

My favorite writer in this category

My favorite MCS features are, in order:

(List as many as you wish, such as 1. New Products, 2. Model Mail, 3. Model of the Month, etc.)

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.
- 8.
- 9.
- 10.

Thank you! Your cooperation is appreciated!

Send to:

Model Car Science, C/O Raymond Hoy, Editor,
P.O. Box 1821, Thousand Oaks, California 91360.

Name ----- Age -----

Address -----

City ----- State ----- Zip -----

MODEL TRUCK CORNER

By Lou Kroack

MCS visits the AMT plant for an exclusive first look at their 1971 model truck lineup

When the AMT Corporation invited a representative of *Model Car Science* to their plant for an exclusive look at their 1971 lineup, I jumped at the chance. Editor Ray said he wasn't about to leave that warm California climate to journey into the wilds of Michigan in mid-winter, so I volunteered, post haste!

Tom Blake, AMT's Vice President of Sales, told me that we would be able to view a most exciting new project, which will be added to their ever-expanding model truck line.

My wife and I arrived in Troy, Michigan on the afternoon of November 22nd, and had the pleasure of dining with Mr. and Mrs. Blake that evening.

The next morning, at the plant, we were shown their new project. This proved to be very exciting indeed, and quite a surprise! We were shown three American La France fire fighting trucks, in 1/25 scale, featuring the excellent details and features to be expected from AMT.

The first one, a "Ladder Chief," will be released in March, 1971. Next will be a "Pumper," to be released in July. The third one, an "Aero Chief," will be released in October. This should be most welcome news for all model fire truck fans!

We were joined in Tom Blake's office by Art Fowler, Director of Advertising and Sales Promotion, for a complete run-down on their 1971 truck kit releases: fourteen in all! It proved to be a well balanced line of trucks and trailers.

Here is the good news from AMT on new truck kit releases for 1971, scheduled by the month:

JANUARY — Fruehauf Chrome Plated Tanker -- a 9000 gallon tanker featuring Sunoco decals.

JANUARY — Chevy Titan 90 Cab-over engine truck-tractor. This one features a tilting cab, Detroit Diesel V-8 engine, spoke wheels, and much more!

MARCH — L.N.T. 8000 "Louisville" Line Ford tandem axle dump truck, featuring "Cat" V-8 engine, tilting dump body and an opening tailgate.

MARCH — American La France "Ladder Chief" fire fighting truck. This one is loaded with detail!

APRIL — Fruehauf Exterior Post Van Trailer.

APRIL — Chevrolet Panel Rescue Truck. This one is Chevrolet's new small van truck.

JUNE — Chevrolet Van Camper. This one is built on Chevrolet's new small van also.

JULY — Kenworth Conventional Wide Front. This one is well worth the wait!

JULY — American La France "Pumper" Truck.

AUGUST — Seven (7) car Auto Transporter Trailer.

OCTOBER — Kenworth Cab-over engine. A perfect mate for the K.W. conventional.

OCTOBER — American La France "Aero Chief."

NOVEMBER — GMC Astro 95. I've waited a long time for this one.

DECEMBER — Low Boy Trailer with load. The load is a large power transformer.

That's it, good news from AMT for all of us model truck fans! They have something for everyone, for sure. These new truck releases should keep all model truck fans busy during 1971.

After receiving this good news, we were conducted on a tour of the plant. We found a highly efficient and modern automated operation. We found AMT to be producing more Peterbults in one day than the Peterbilt Motor Company manufactures in a year!

We'd like to thank AMT for the tour and the chance for a "first look" at this beautiful equipment. We know you readers will be looking forward to seeing these exciting new models on sale around the country in 1971.



The start of our tour. From left to right: my wife, Tom Blake, AMT's Vice President of Sales, and myself.



Here we are in the Instruction Sheet Department. Left to right: Jon Nicholls; myself and my wife; and John Gemmell, who is explaining this operation.



Jerry Hadrian of the Art Department shows us the art work for the kit box of the American/La France 'Ladder Chief'



Youm truly checks out a "test shot" of AMT's new Ford "Louisville" tandem axle dump truck.



Left to right John Gemmell shows us some changes (for the better) on the new Chevy Titan Tractor. It has a much better hinge arrangement on the tilting cab than the "Pete Pacemaker"

John Gemmell points out various features of some built-up AMT truck models



MODEL TRUCK CORNER



Left to right: John Molnar explains the operation of the Molding Department to us



John explains about the substance that is sprayed on the parts prior to the actual chrome plating.

60/Model Car Science



John shows us how the parts to be plated are put into the tank...

and lets us have a good look at the parts just before seating the tank for the plating operation. The parts are put in under a vacuum and the tank is pressurized. The small metal pieces used for the plating literally explode, causing the parts to become uniformly chrome plated



After completing the plant tour, we return to Tom Blake's office, where we are joined by Paul Wood of the Sales Department. This is the big moment we have been waiting for, the complete line up for 1971 truck releases.

Here we see how the gals at AMT pack the kits. They see to it that the proper parts get into the right kits.



AMT's new Ford Louisville Dump ("the Muscle Truck") from AMT. It's a tandem axle Ford L.N.T. 8000, featuring a "Hell" dump body with a three-section telescopic hoist and opening tailgate. It has the Ford Cat, V-8 diesel engine and more than 235 super-detailed parts in 1/25 scale. Stock No. T 503. Suggested retail price \$6.00



Already released is this Titan 90 Heavy Chevy from AMT tilting cab with sleeper, super-charged, fuel injected, Detroit V-8 engine. Single or dual exhaust options. Detailed chassis with tandem rear axles. Six chrome-trimmed spoke wheels, ten hollow vinyl name brand truck tires, and much more in exact 1/25 scale. Stock No. T-509 Price \$5.00.

NEW PRODUCTS



MPC announces special custom tire package offer. A custom tire pack... a special offer from MPC. Eighteen tires, in assorted styles, accurately molded in soft vinyl are available for only \$1.00. Included in the offer are 4 Giant Indy Tires, 2 Wild Terra Tires, 4 One-Piece Funny Car Slicks, 2 Small Eagles, 2 Large Eagles and 4 Giant Dragster Slicks. Great for styling, customizing, altering, scratchbuilding or anything. Just send \$1.00 to MPC/TIRES, Dept. MCS, 126 Groesbeck Hwy., Mt. Clemens, Michigan 48043.

A new magazine for people who love animals and are concerned with the care and health of their pets is the talk of the magazine world now, and it is magnificent. Entitled "Animal Cavalcade," the magazine is published by the Animal Health Foundation, a non-profit organization which is head quartered at Pico Rivera California. It is edited by Harry Miller who is a well known figure in the field of pet care. Volume 1, Number 1, of "Animal Cavalcade" carries informative articles by veterinarians and lay writer knowledgeable in the veterinary field. Articles featured are "Presidential Pets" by Margaret Truman, "What You May Not Know About Cats" by a veterinary researcher, "Superb Health Care for Vietnam War Dogs" and "The Case For and Against Wild Animals as Pets" by a trio of veterinary practitioners. Special departments are devoted to "Animal Health News" and "Doctor's Advice," which deals with animal health problems.

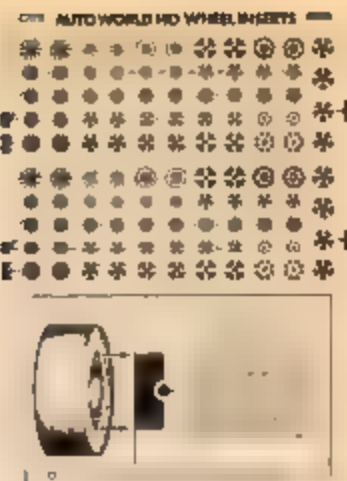
"Animal Cavalcade" is available only to subscribers (12 issues for \$5.00), and you don't want to miss even one issue. Your subscription should be sent to: Animal Cavalcade 8338 Rosemead Blvd., Pico Rivera, Calif. 90660.



MPC announces another super '71... Pontiac's Firebird Formula 400 in a 1/25 scale model kit. The sleek and snappy pony goes together in three superb building versions, stock, dragster and custom. Any choice has to win. The stock is one of the cleanest set of wheels to roam the streets. It sports the 400 hood, 400 CID engine, wide ovals with stock wheels and a detailed interior with buckets. The custom version adds special front and rear spoilers, custom wheel, custom taillights and grille. And the drag version features hollow slick tires, roll bar, engine modifications and mags plus some of the wildest Firebird decals to ever grace super stocker.



"Baja Bug" from L.M. Cox is a scale replica of a modified VW sedan similar to those used in the Baja 500 and 1000 races. The model is powered by an .049 Cox gas engine and features recoil starting, throttle control, gear shift and a 40:1 gear ratio. Soft semi-pneumatic tires easily negotiate humps and obstacles. Price, ready-to-run about \$20, including instructions and tools for routine maintenance.



Dress up your HO race cars with Auto World's NFW Wheel Inserts. Much more realistic than stock wheel hubs. Five color decal sheet has 108 wheel inserts of several different mag, spoke and dishpan styles. E-Z to apply give a professional race car appearance to any HO car. Only \$3.40 a sheet at your local hobby shop or direct from Auto World, Dept. MCS, 701 N. Keyser Ave., Scranton, Pa. 18508.



The latest addition to MPC's lineup of 1/25 scale current car kits is the 1971 Mustang. This is a kit with three extraordinary building versions. The Trans-Am racing version features a completely authentic Trans-Am racing interior. The roll cage, special bucket, instrument panel and tunnel are a right-on scale version of actual competition set-up. The Pro Stock dragster is an equally exciting version. A powerful 428 Cobra engine with high rise intake and hood scoop supply the go. And there are spoilers, decals and Minilite mags that finish off the dragster. A stock Mach 1 offers a choice of the 428 Cobra engine or the 302 Boss rig. Stock wheels, wide ovals, racing mirrors and scooped hood are some of the other features on this version as well.



JIGFORM is a combination jig and working platform developed to facilitate the sawing of small delicate parts and pieces with a jeweler's or hobby craft saw. When clamped to the edge of a workbench, table or desk (with a standard hobby C clamp) it serves as both an ideal support for the material being sawed and as a highly useful guide in sawing it to the desired form. **JIGFORM** is a simple, effective, low cost solution to the damaged saw blades, cut fingers, defaced table edges and ruined parts resulting from attempts to hand hold work over the edge of a table when sawing. **JIGFORM**'s unique keyhole slot, having both straight and curved edges, permits sawing a great variety of materials (wood, styrene, lucite, aluminum, brass, etc.) to any shape. Simply by varying the position of the work with respect to the "keyhole" as required, sawing even the most complex shapes is reduced to a routine procedure. **JIGFORM** is indispensable to all hobbyists and craftsmen working with a jeweler's or hobbycraft saw, and made of hard wood will last indefinitely with very little care. Priced at \$1.98, it is available from better hobby and craft shops or direct from the manufacturer, Broz Engineering Co., Dept. MCS, P.O. Box 207, Scranton, Pa. 18501.



Jo-Han has two superb pro stock car kits in the form of a '71 Comet and a '71 Javelin/AMX. Each kit features a 1/25 scale model with all the super-detailed components possible at this scale. Also included are scale reproductions of authentic decals to further stimulate the visions of those marvels of engineering, the drag car. Each car may also be built as an authentic showroom stock.



COX'S "ELIMINATOR II" races down a fast drag line, reaching a speed of over 300 scale miles per hour, or more than a full 33 mph. Powered by Cox's famous 049 cu. in. engine, this snappy 14-inch long dragster is realistic in every detail to its famous AA Fueler drag racing counterpart. The 1/12th scale model features wide racing slicks, bicycle front tires, front end loading "wing," mag-type wheels, and an aerodynamic designed chassis molded in flaming red. Cox has designed two unique features into the "Eliminator II" model. The first is an actual working drag chute which deploys when a fork lever on the model strikes a tripping bead on the fast drag line. The tripped fork lever then activates the parachute ejector wire releasing the drag chute. When the chute is deployed, it automatically shuts the engine off, completing the "Eliminator II's" run. The second feature is Cox's exclusive Launch Platform. The model, with engine running, is placed on the platform. When the "driver" is satisfied that his model is competition-ready, he presses the Launch Button and the "Eliminator II" is off to an extremely fast run. Cox's "Eliminator II" is constructed of the latest high-impact resistant plastic and, of course, Cox's engineering expertise in quality craftsmanship is evident throughout. Each model carries Cox's warranty, and a complete Owner's Car Manual.



Collecting die cast replicas of classic, antique, and competition cars has become one of America's fastest growing hobbies. A beautiful new 48-page catalog features hundreds of the 1/43 scale die-cast ready-built models. You will also find 1/24 scale all-metal auto kits, brass and hardwood antique cannon kits, ready-built jet airplane models, books on the auto model hobby and vintage autos themselves. Probably the most sensational item in the catalog is a ready-built brass model in 1/2 scale of the 1928 Mercedes SSKL, available in very limited quantities for \$500.00. The catalog is \$1.00, but a certificate is included which refunds the dollar with your first order. Write to Sinclair's Auto Miniatures, Dept. MCS, P.O. Box 8068, 3416 West Lake Rd., Erie, Pa. 16505.



Into the spotlight of stardom comes Ford's sporty little Maverick, outfitted as a mean funny car, to compete with the big boys. This super kit is offered with a blown Ford 429 with Enderle motor, ultra-detailed Logghe chassis, one-piece simulated fiberglass body, chrome moon fuel and water tanks, full competition interior, drag slicks and disc brakes, twin chute packs and much more. From Jo-Han Models, available at stores nationwide.



Plymouth Superbird — One of the wildest "stock" cars to ever hit the NASCAR circuit has now rolled through the studios of Sox and Martin to invade the drag strips in the Super Stock classification. Never before have the drag fans seen the likes of this long-nosed, high-tailed, aerodynamically-designed "Bird." Build an authentic replica of this feet-footed Coo-Coo with all the detailed features and official Sox & Martin and sponsor decals of the wild original. From Jo-Han Models, available nationally.

1971 AUTO WORLD INTERNATIONAL RACING CAR CHAMPIONSHIPS



for the
1971 AUTO WORLD HO INTERNATIONAL
CHAMPIONSHIP TROPHY AND TITLE
plus
CHAMPIONS IN 9 DIVISIONS



**33 TROPHIES!
HUNDREDS OF PRIZES!
WORLD'S MOST INTERESTING MAIL-IN CONTEST!**

This event sanctioned by HOCCI

CONTEST RULES AND REGULATIONS

1. ELIGIBILITY. Open to modelers everywhere except the employees of Auto World, Inc., and their immediate families.

2. ENTRIES. All entries must be HO model vehicles or similar in scale, scratch built or modified from stock by the entrant. Cars like Aurora, Tyco, Atlas, Faller or any combination thereof as well as scratch built are eligible. Each model will be test run on an Aurora HO track, using an Aurora HO powerpack and controller before being judged. Models that don't run will NOT be eligible for judging. Judging will not be based on performance. You may enter as many cars in each division or separate divisions as you like. However, only your car placing highest in the judging will be eligible for an award. Each car entered must be accompanied by a separate official entry blank and separate \$1.00 fee to cover registration, handling and return postage costs.

3. MAILING. Cars must be mailed before **APRIL 1, 1971**, using the mailing instructions on this blank. This entry blank and mailing label (or facsimile) must be used. Mail the model, together with the entry blank and \$1.00 fee, either cash, check or money order, (made out to Auto World HO Contest). Foreign currency equivalent to \$1.00 in U.S. currency will be accepted.

4. SPECIAL TROPHIES AND AWARDS

- "1971 AUTO WORLD HO INTERNATIONAL CHAMPIONSHIP TROPHY" and the title "1971 AUTO WORLD HO INTERNATIONAL MODEL CHAMPION" together with a U.S. Savings Bond for \$50.00. This award will go to the best car of contest regardless of the division entered or awards won in that division. Does not include Division 10.
- "1971 AUTO WORLD BEST CONSTRUCTED BODY TROPHY" to be awarded to the best detailed and constructed body regardless of the division entered or awards won in the division. Does not include Division 10.
- "1971 AUTO WORLD BEST ENGINEERED CHASSIS TROPHY" to be awarded to the best design/engineered chassis regardless of the division entered or awards won in the division. Does not include Division 10.
- "1971 AUTO WORLD BEST ORIGINAL BODY DESIGN TROPHY" to be awarded to the best looking original body design regardless of the division entered or awards won in the division. Does not include Division 10.
- "1971 AUTO WORLD BEST PSYCHEDELIC PAINT DESIGN TROPHY" to be awarded to the best psychedelic paint design entered regardless of the division entered or awards won in the division. Does not include Division 10.

5. DIVISIONAL TROPHIES AND AWARDS. All models must conform to and be entered in ONE of the divisions listed. Trophies will be awarded to 1st, 2nd, 3rd placed cars in each division. Additional prizes, kits, cars, parts and equipment, subscriptions to model magazines will be awarded from 4th through 20th places in each division, as well as HOCCI membership.

DIVISION 1 NASCAR STOCKERS

Basically late model stock cars—decorated and modified to resemble the NASCAR Stock cars raced in oval track events, such as Daytona, Darlington, etc.

DIVISION 2 SCCA CAN-AM CARS

Rear engine Group 7 cars, two seaters with envelope bodies like the McLaren, Lola, raced in SCCA road race events. Airfoils allowed.

DIVISION 3 SCCA TRANS AM CAR

Mustangs, Camaros, Firebirds, Javelins as raced in the SCCA Trans Am Road Racing events.

DIVISION 4 NHRA FUNNY CARS

Late model stock cars modified for drag racing. Bodies are altered, have flashy paint jobs and lettering. These cars are dragsters in disguise.

DIVISION 5 NHRA DRAGSTERS

Long frames, fat slicks in the rear, skinny front tires, capable of speeds over 200 MPH in the quarter. Seen at all NHRA events.

DIVISION 6 USAC FORMULA NOY CARS

Open wheel racers like the STP Special, Grand Prix cars like Aurora's McLaren and Lotus. Cigar shaped bodies—airfoils allowed.

DIVISION 7 INTERNATIONAL GT CARS

Closed two seater sports racing coupes, like the ones that run Sebring, Daytona, LeMans. The Ford GT, Lola, Porsche, Ferrari are a few.

DIVISION 8 DUNE BUGGIES

Fat tires all around, usually open bodies with VW or Corvair engines. There are a few kits, but you can build bodies from paper, wood, plastic.

DIVISION 9: CUSTOM VEHICLES

Any modified manufactured model or scratch built entry that does not conform to the above. Can be trucks, buses, antiques, Paddy Wagons, special custom show cars like the Milk Truck or Surf Wagon or even motorcycles.

DIVISION 10: PROFESSIONAL

This division is open to 1970 Auto World HO Champions, and people employed in the Hobby and Toy industry including employees of Auto World, Inc. Other contestants are not eligible for this division.

Entry in this division may be any modified manufactured scratchbuilt or original design model that conform to the above divisions. Can be Nascar Stocker, Can-Am car, Dragster, Formula car, Custom vehicle etc. There is no restriction as to design or type of the model. Only one trophy will be awarded to the Top Professional.

6. HOW MODELS WILL BE JUDGED. Entries in Division 1 through 7 will be judged on neatness and quality of workmanship, and conformity to designs of real cars or prototypes in respective divisions. Models entered in Divisions 8 and 9 will be judged on neatness, quality of workmanship, originality in design as well as for scale replicas not classified in any of the divisions. (Antiques, buses, etc.)

7. JUDGING. Will be completed by **APRIL 25, 1971** by a team of seven judges and the decision of the judges will be final. Winners will be notified immediately by first class mail. All models will be returned to the entrant prepaid, together with complete contest results and a handsome PARTICIPANTS PLACQUE.

8 Auto World, Inc., reserves the right to photograph models in the contest and publish photographs and descriptions.

FROM _____

Fragile!
Model car!**auto world inc.**
701 N. Keyser Ave.,
Scranton, Pa. 18508**OFFICIAL ENTRY BLANK**

Name _____ Age _____

Address _____ Phone _____

City/State _____ ZIP _____

Division 10 — Employed by _____

DESCRIPTION OF MODEL _____

Manufacturer _____ Paint color _____

Special parts used (identify by mfr.) _____

SPECIAL AUTO WORLD PARTS BONUS AWARD

Any entrant who uses any Auto World HO Racing Parts, Decals, etc. in building his car and wins any Special Award or any 1st through 20th place award in any Division will receive, in addition to that award, a Bonus Award of Auto World HO Racing Products (including the very newest!). To qualify for this Bonus, list the Auto World Products used here.

CLASS ENTERED (circle one)

DIVISION 1: NASCAR STOCKERS

DIVISION 2: SCCA CAN-AM

DIVISION 3: SCCA TRANS-AM

DIVISION 4: NHRA FUNNY CARS

DIVISION 5: NHRA DRAGSTERS

DIVISION 6: USAC Formula/Indy

DIVISION 7: INTERNATIONAL GT

DIVISION 8: DUNE BUGGIES

DIVISION 9: CUSTOM CARS

DIVISION 10: PROFESSIONAL

50 words or less — a complete description of the car _____

The model cost me approximately \$ _____ to build

ENTRANT'S STATEMENT

I've read the contest rules and packaging instructions, and agree to abide by them. I'm enclosing payment of \$1.00 (cash, check or money order — circle one) and (am, am not circle one) enclosing a photo of myself. I understand my car will be returned to me in March, 1971, prepaid and insured.

Signed _____ Date _____

PACKING INSTRUCTIONS**FOLLOW THESE DIRECTIONS FOR SAFE DELIVERY**

1. Wrap your model in a soft cloth to avoid scratching. Do not use a tape to secure wrapping.

2. Set up a small box approximately 6" x 3" x 3" and fill the bottom with stuff tissue paper shredded paper or polystyrene foam.

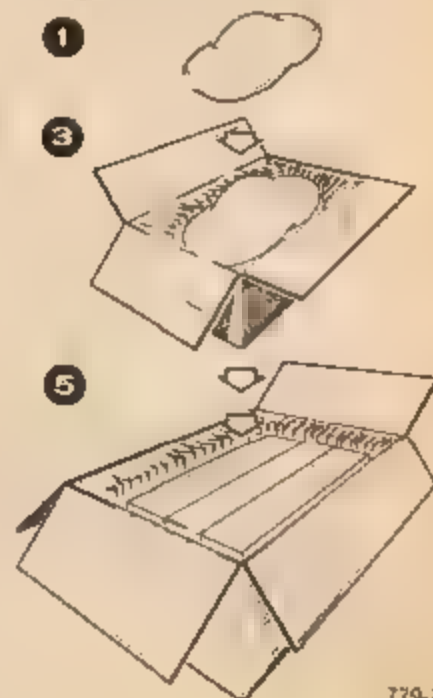
3. Set wrapped model inside, pack sides with same material mentioned above and also on top of car. Put ENTRY FORM and ENTRY FEE in envelope and place it in this box.

4. Get a larger carton, about 2 or 3 times the size of the first (shoe box or similar) and put crumpled newspaper in the bottom.

5. Set the smaller box inside; crumple newspaper and put around the box and on top.

6. Seal the box with a good package sealing tape. Affix the SPECIAL ADDRESS LABEL SUPPLIED ON THE ENTRY FORM AND MAIL. It would be wise to insure the package. See your local post office.

7. MAIL EACH MODEL INDIVIDUALLY.



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SCRATCHBUILDING

Continued from page 12

flattened and drilled to accept a model-railroad valve-gear rivet, are attached to the spindle-support or backing plate. Tie-rods and pitman arms are made the same way. Steering can be made to operate from the steering wheel by as simple or complex a set-up as desired: You can install suitable gears (available in profusion, now, as slot-racing parts), or merely bend the end of the steering shaft to an L-shape and bring a rod across to the tie-rod. Better allow lots of play in the latter set-up, however, as it will bind otherwise.

Shim-brass spring leaves, mounted on a 00-90 or 0-80 center-bolt and bound with clips made from paper staples, work beautifully if you use care in bending the shackle-eyes at the end of the main leaf. Thin brass is hard to cut into strips without making the "leaves" curl sideways, but a really sharp No. 11 X-Acto blade, guided with a metal-edge ruler, will cut the stuff if you apply a lot of pressure. It's best to epoxy metal springs to the spring-saddles on the axles and reinforce with wire "U-bolts" bent over the springs and under the axle proper. The woodworker will prefer cardstock spring leaves, cemented together and to the axle.

It's surprising how often items intended for other uses turn out to be ideal for automotive modeling. Ship modelers use a small brass gizmo called a "backing link," which serves to support the shroud dead-eyes. It's a small length of stiff brass with enlarged ends in which holes are drilled, and it looks for all the world like a spring shackle! So, I use backing links as spring shackles, with 0-80 screws for the shackle bolts. Check ship-model shops for these links. If you can't find 'em, merely cut the shackles from sheet brass after drilling holes of the appropriate size. Of course, if you're using cardstock springs, shackles can readily be made from dowel and card and the assembly either pinned or cemented to the frame.

Now that we've learned to make hinged joints from brass tubing or wooden dowels and pins, we're ready to talk about "ifs." The A-frames should be sawed from brass plate (or birch plywood), and the hinged joints made the same way we fabricated the king-pin and bushing arrangement. Working coil-spring ifs presents some problems, as it's hard to wind your own springs from music wire and anything else just doesn't have enough "bounce" to it. However, it's sometimes possible to find little springs of

the proper tension and correct size in your spare-parts box, or in a hardware store. Failing that, wind up springs from copper wire and settle for non-working suspension.

We haven't mentioned torsion-bar suspension because it's reasonably rare. If you get involved with it, the bars can be brass rod or tubing of appropriate size, or wooden dowel-stock. With a little ingenuity you can devise a working set-up with the bars actually doing their job. The major problem is clamping the bars at the fixed and moveable ends, but they might be pinned or fastened with a set-screw.

Unless you have metal-working equipment, it's probably easiest to shape the rear axle and differential housing from wood. White pine will do nicely, and you need only drill the ends to accept the axles, proper. Balsa is okay, too, but because it lacks strength, it's best to run the axle all the way through. Make the assembly in three parts, with both ends and the circular housing in one piece, the rounded rear cover a second, and the front "nose" a third. Remember to drill the nose to accept the driveshaft. Brackets for brake-rigging and shocks should be installed before mounting the axle on the springs. Rear springs are made the same as the front ones, of course, and attached the same way.

Telescopic hydraulic shock-absorbers could hardly be simpler! Pieces of that progressively sized brass or aluminum tubing, available everywhere, make up the bodies; the mounting-rings are thin slices of the same tubing, soldered or epoxied in place. Or, you can use a composite structure of tube and dowel, selecting the right sizes for proper fit. Old-time friction-type shocks are a sort of "sandwich" construction, and I've used everything from cardstock to lucite to make the disks and arms, mounting them on a 0-80 hex-head bolt. Attach the arms to the axle and frame with pins, brads, or bits of wire.

The chassis of our scratchbuilt car is now beginning to take shape. Because wheels are generally considered to be a formidable obstacle to scratchbuilding, among the uninitiated, we'll discuss them next time. Meanwhile, if you've missed the previous installments of this series, send 50¢ for each issue desired (July, September, October, November) to "Back Issue Department" at the address listed on the contents page. And, should you have questions on scratchbuilding you'd like to see answered in this column, send them to me at the same address. If you'll enclose a stamped, self-addressed envelope, I'll reply direct, also.

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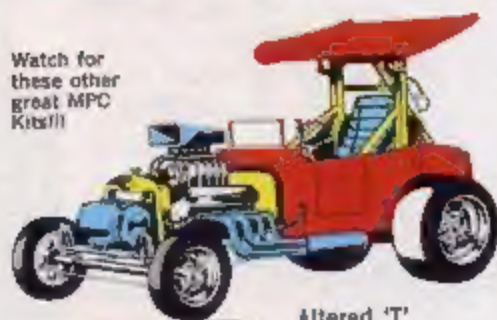
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